



**DIGITAL RECORDER
INSTALLATION AND
OPERATION MANUAL**

MODEL

DX-TL930E

Features

Unit with built-in, large-volume hard disk drive

This unit realizes high-resolution playback of over 400 horizontal lines thanks to digital technology using JPEG compression. There are 5 user-selectable image quality settings. The main device also features a built-in, large-volume 30GB hard disk for both high reliability and high-speed operation. Users can select from 12 recording intervals ranging from 25 frames-per-second to one frame per 8 seconds, and up to a maximum 2,197,000 frames can be recorded consecutively.

Built-in 9-input multiplexer functions

With the number of operational cameras increasing, the combination of unit and multiplexer has become standard. In our pursuit of the high-quality image playback characteristic of digital recording and a way to make the recording operation more ideal, we have included a versatile multiplexer capability in this unit.

• Camera switching and split-screen display

Throughout terminals for non-simultaneous connection of 9 cameras. Split-screen modes of Single screen, SPLIT 4, or SPLIT 9 screens for sequential display.

• Timer Program link function

Registration of 3 kinds of camera recording operation patterns.

User-specifiable alteration, through use of the timer recording program, of the number of operational cameras by schedule.

• Electronic display enlargement function

Electronic display enlargement of user-selected areas within the currently displayed image. For example, display enlargement of the cash payment counter using the main unit's controls.

Non-stop recording capabilities and recording media

To handle applications requiring long-term storage of recorded images, this unit is capable of using supplementary devices to create backups and copies without interrupting hard disk recording. Used in conjunction with the wide selection of media, this unit can handle many different kinds of non-stop recording.

• ARCHIVE media

Backup capability using the recording devices available on the market – such as DDS, DVD-RAM, and MO – as its supplementary peripheral recording device.

• Backup while recording

Backup and copying operations without interrupting the non-stop recording operation.

Convenient maintenance by using the Timer Program to designate the time of simultaneous backup operation; for example, to create a complete backup on a given day of every week.

• Peripheral hard disk expansion

With 9-camera input capability, up to 3 peripheral hard disk drives (max. 132GB) can be added to supplement the built-in hard disk when extended recording time is needed.

User-friendly operation

Because of the internal structural differences between standard Unit and time-lapse VCRs, there has been a weakness in the area of intuitive operability. With consideration to this point, a control panel featuring the same control key layout of time-lapse VCRs and a JOG /SHUTTLE have been used for this unit.

Versatile functions to support surveillance

• Audio recording function

1-channel PCM audio recording mode included. Along with clear surveillance images, clear audio quality of cash register operation, customer conversations, etc.

• Image-alteration recognition function

Processing of each image recorded with this unit using a proprietary image-alteration recognition method.

• Versatile high-speed search operation

Easy searching using a proprietary searching algorithm. Options include searches through alarm input-time list, designated days, skip/index searching, etc.

• Excellent expandability

Standard inclusion of RS-232C interface for remote PC control, and various control terminals. Flexible use even for high-level security systems.

• Pre-alarm Recording function

Recording of images recorded before the alarm sensor detects disturbances. Enhanced surveillance effect through the capture of the decisive moment before the alarm.

• 4-character year display

In consideration of the Y2K problem, a time-date generator using four characters for the year display is included.

Caution and care

HEAVY OBJECTS SHOULD NEVER BE PLACED ON THE UNIT (E.G., TV)

NEVER TOUCH OR INSERT ANY OBJECT INSIDE THE UNIT

Touching the inside of the cabinet or inserting foreign objects of any kind not only creates a safety hazard but can also cause extensive damage.

PROTECT THE MAINS LEAD

Damage to the mains lead may cause fire or shock hazard. If the mains cord is damaged, switch off the mains outlet and carefully unplug the cord by holding the mains plug.

UNPLUG THE MAINS LEAD DURING A LONG ABSENCE

Turn off the power and unplug the mains lead during a long absence.

MAINTAIN GOOD VENTILATION

Do not obstruct the many ventilation holes on the unit. For maximum ventilation, leave some space around the unit and place the unit on a hard level surface only, and ensure it is not covered during use. Heavy objects should never be placed on the unit.

WHEN NOT IN USE

When you finish operating the unit always turn OFF the unit's POWER.

CABINET CARE

Never use petroleum-based cleaners. Clean with a soft cloth moistened with soap and water and wipe dry. PVC cables or leads should not be left in contact with the cabinet surface for long periods.

ATTACHING THE FERRITE CORE

The ferrite core is essential to avoid radio interference from the cables connected the unit against peripheral device. Be sure to attach the ferrite core to all cables connected to POWER CORD, ALARM IN terminals (GND terminals) and I/O terminals.

INSTALLATION LOCATION

For excellent performance and lasting reliability install in a location that is:-

1. Well ventilated, out of direct sunlight and away from direct heat.
2. A solid vibration-free surface.
3. Free from high humidity, excessive dust and away from magnetic fields.
4. Please ensure that the ventilation fan located on the unit's back panel is not blocked.

UNSUITABLE LOCATIONS

Placing the unit in the following places might shorten the product life:

- Extremely cold places, such as refrigerated warehouses and ice houses
- Places where excessive hydrogen sulfide is likely to be generated, such as hot-springs areas
- Places or locations with salt air environment.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. THIS APPARATUS MUST BE EARTHED.

MAINS LEAD CONNECTION

The mains lead on this Unit is fitted with a non-rewireable mains plug, incorporating a 5A fuse. If you need to replace the fuse, use a 5A fuse approved by BSI or ASTA to BS 1362, ensuring you refit the fuse cover. If the mains plug is not suitable for the sockets in your home, and you require to remove the plug, remove the fuse, cut off the plug then dispose of the plug immediately, to avoid a possible electric shock hazard. To refit a new plug, follow these instructions; Green-and-yellow: Earth, Blue: Neutral and Brown: Live.

As the colours in the mains lead of this Unit may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows.

- The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured green or green-and-yellow.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
- The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

This Unit complies with the requirements of the EC Directive 89/336/EEC, "EMC Directive", as amended by Directive 93/68/EEC. The requirements for the susceptibility according to EN 55024 and the requirements for interference according to EN 55022 are observed for the operation on residential areas, business, light industrial premises and in small scale enterprises, inside as well as outside of the building. All places of operation are characterised by their connection to the public low voltage power supply system.

This unit is manufactured in accordance with EN 60950.

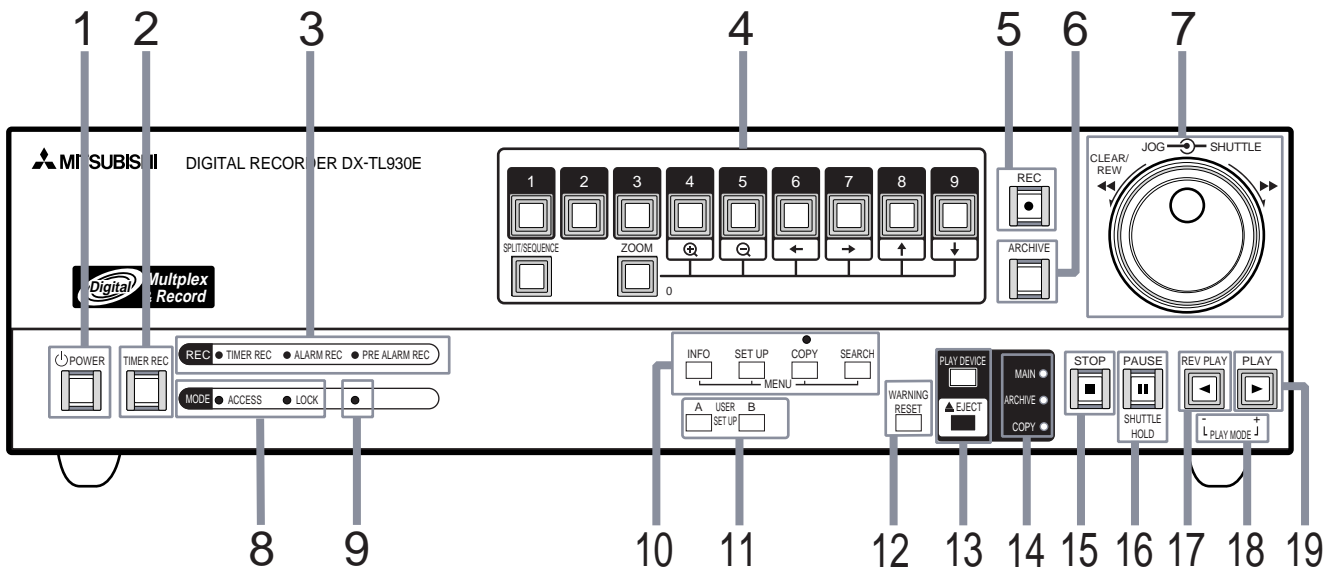
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Major operations and their functions

■ Front View



1. POWER button

Press to turn the power on, press again to turn the power off. This button lights/goes off when the power is on/off. It flashes when switching between functions such as during setup. While the POWER button is flashing, all button related functions will not work.

2. TIMER REC button

This button is pressed when a timer recording is to be made. Press again to cancel a timer recording.

3. Recording indicators

TIMER REC indicator

Illuminates during timer recording and timer recording stand-by mode. The POWER button will not work while the TIMER REC indicator is illuminating. To turn on the power while the TIMER REC indicator is illuminating, press the TIMER REC button to cancel the timer recording stand-by mode and then press the POWER button.

ALARM REC indicator

Flashes during alarm recording and illuminates when the alarm recording is finished.

PRE ALARM REC indicator

Illuminates during pre-alarm recording and pre-alarm recording stand-by modes.

4. Multiplexer buttons

These buttons cannot be used with the LOCK function.

Camera number button (1 to 9)

Press to display the image of the camera connected to this unit on the monitor. In addition, this can be used as the PASSWORD LOCK function key.

SPLIT/SEQUENCE button

Used to switch the display to the single screen, SPLIT 4 or SPLIT 9 screen. Also used to switch the sequence functions. Refer to page 37 for details.

ZOOM button

Pressing this button displays the Zoom in pointer (X) on the monitor. Pressing 4 button (ZOOM IN) enlarges the selected part, and pressing 5 button (ZOOM OUT) reduces the image. Pressing 6, 7, 8 or 9 button moves the image to the direction that the pointer (X) moves. In addition, this can be used as the PASSWORD LOCK function key.

ZOOM IN button (Camera number button 4)

Pressing this button after pressing the ZOOM button enlarges the image in 2 steps.

ZOOM OUT button (Camera number button 5)

Pressing this button after pressing the ZOOM IN button reduces the image.

Move buttons (Camera number button 6 to 9)

Press these buttons to move the ZOOM POINTER to desired position.

5. REC button

Press to begin recording. When pressed during one-shot recording stand-by mode, the one-shot recording will begin.

6. ARCHIVE button

Press to begin making backup. If there is no peripheral recording device connected, this button cannot be used.

7. JOG and SHUTTLE operation**SHUTTLE ring**

Used to set various menus and searching functions, adjusting the playback speed, and rewinding or forwarding the image.

JOG dial

Used to set various menus and searching functions, forwarding or reverseing the image during playback (field-by-field).

8. MODE indicators**ACCESS indicator**

Flashes during accessing to hard disk drive or peripheral recording devices.

LOCK indicator

Illuminates when the LOCK button is set to "ON".

9. LOCK button

Press this button to lock the unit. When pressed with a ball point pen or similar object, keeps the operation buttons from functioning and locks the unit in the current mode. Release the lock by pressing the LOCK button again. This button also can be used for PASSWORD LOCK function. Refer to page 56 for details.

10. MENU buttons

Press one of the buttons to display each menu. Press again to exit the menu.

INFO button

Press this button to display the <INFORMATION> menu.

SET UP button

Press this button to display the <MENU SETTING> menu.

COPY button

Press this button to display the <COPY SELECTION> menu. This button does not work if the peripheral device is not connected to SCSI ID4 and SCSI ID5.

SEARCH button

Press this button to display the <SEARCH SELECTION> menu.

COPY indicator

The Indicator will start to blink during Copy or Restore operation. Illuminates during copying.

11. USER SET UP button A,B

One touch operation is available by assigning some frequently used operations to these buttons.

12. WARNING RESET button

Used to clear a warning displayed on the monitor.

13. PLAY DEVICE button

Used to select a playback device. If there is no peripheral recording device connected, this button cannot be used.

EJECT button

Used to eject the medium of playback devices. Use this button to eject the medium of peripheral recording devices connected to this unit. If there is no peripheral recording device connected, this button cannot be used.

14. PLAY DEVICE indicators

The indicator of the device selected by the PLAY DEVICE button illuminates.

15. STOP button

Press to stop recording or playback. When pressed during alarm recording, the recording stops.

16. PAUSE button

When pressed during recording, the recording pauses. Press again to resume recording. When pressed during playback, a still picture is displayed.

SHUTTLE HOLD button

This button keeps the particular playback or reverse playback speed depending on the degree to which the SHUTTLE ring is turned. Refer to the page 49 for operating this button.

17. REV PLAY button

Press to begin reverse playback.

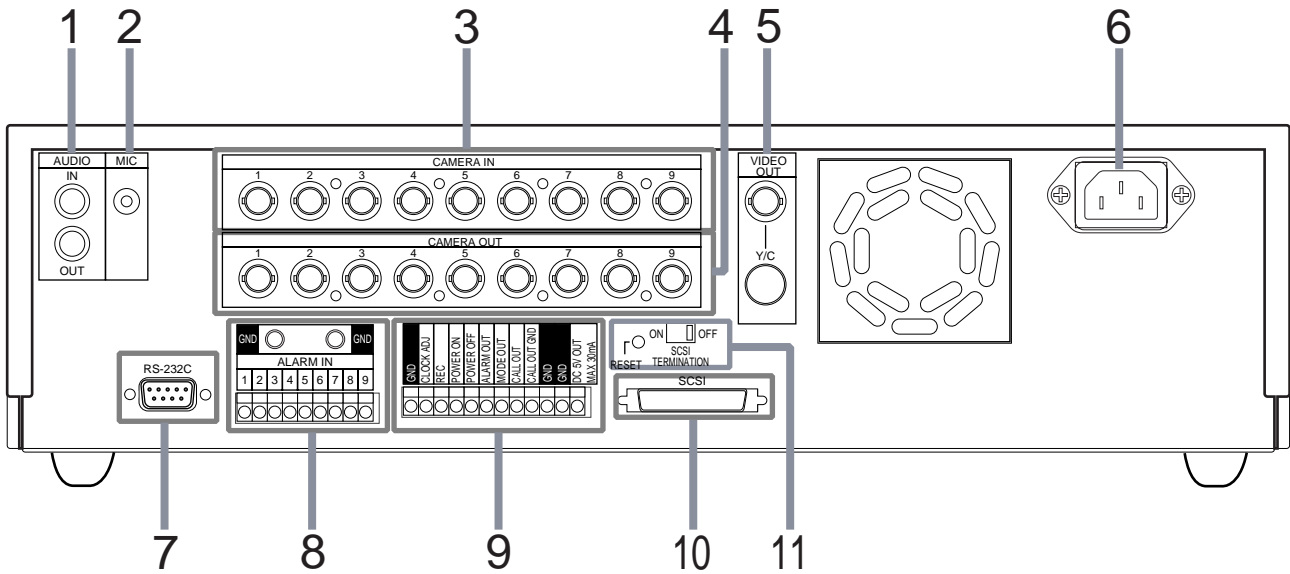
18. PLAY MODE buttons

These buttons can be used to switch the playback interval while in still mode and playback.

19. PLAY button

Press to begin playback.

■ Rear View



1. AUDIO connectors

AUDIO IN connector

Input connector for audio signal (RCA pin).

AUDIO OUT connector

Output connector for audio signal (RCA pin).

2. MIC jack

Input connector for microphone (600 ohm impedance).

3. CAMERA IN connectors

Input connector for images of camera (BNC connector).

4. CAMERA OUT connectors

Output connector for images of camera which is inputted into CAMERA IN (BNC connector).

5. VIDEO OUT connectors

Output connector for video signal (BNC connector).

S(Y/C) OUT connector

Output connector for separate Luminance and Chrominance signal. Available to output the signal with VIDEO OUT connector at the same time.

6. AC power socket

This socket connects to the power cord. Earth terminal is for safety. Use the 100 - 240V plug with earth for the power of this unit. (Refer to #1)

7. RS-232C socket

This terminal is used to connect to host device with RS-232C terminal. This unit can be controlled by the other device through this terminal.

8. ALARM IN terminals

Input terminal for alarm signal.

GND terminals

Input earth terminal for ALARM IN terminal. Use only the terminal screw for this unit. It may cause damage or poor connection.

9. I/O terminals

Refer to the marginal notes on right side.

10. SCSI terminal

This terminal is for connecting this unit to other peripheral recording devices.

11. RESET button

When pressed, the present time is erased and initialized, then the power is turned off.

SCSI TERMINATION switch

When setting to "ON", the terminator function works, and when setting to "OFF", the function stops. Set it to "ON" when not connecting the peripheral SCSI device.

■ I/O terminals

GND terminals

The ground terminals for Input/Output terminals.

CLOCK ADJ terminal

Input terminal to set the present time display. Time display is adjusted to the nearest hour (00 minutes 00 seconds) when this terminal receives the CLOCK ADJ signal.

REC terminal

Input terminal to start recording. Also use for one-shot recording.

POWER ON terminal

Input terminal to turn on this unit through a peripheral device.

POWER OFF terminal

Input terminal to turn off this unit through a peripheral device.

ALARM OUT terminal

Output terminal to indicate that the alarm recording is in process.

MODE OUT terminal

Output terminal to indicate the unit's current mode. Select the unit's condition by MODE OUT setting in the <REAR TERMINAL> menu.

CALL OUT terminal / CALL OUT GND terminal

This is the ISOLATION output terminal. (Refer to page 76.) Output terminal and its GND terminal to indicate the information such as "HDD FULL". Select the information by CALL OUT setting in the <REAR TERMINAL> menu.

DC 5V OUT terminal

This terminal is for direct current voltage output. The maximum electric current is 30mA.

*#1

If the power cord has no earth terminal, consult your dealer to replace the code (with charge). Do not connect the earth terminal of a plug to gas pipe, water pipe, lightning rod and so on.

Basic Operations

How to use JOG dial and SHUTTLE ring

This unit is available to set the operating conditions on the menu display, depending on the purpose. There are some difference in the setting process between each menu. The following explains the basic setting process which uses the JOG dial and the SHUTTLE ring.

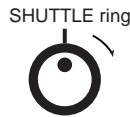
Setting the character size

Example: Setting the CHARACTER SIZE to "LARGE" (the default setting is "SMALL").

1. Press the **SET UP** button on the front of the Unit.
 - The <MENU SETTING> menu will appear.



2. Make sure that the cursor is set to the **TIME DATE DISPLAY** and turn the **SHUTTLE** ring to the right.
 - Turning the **SHUTTLE** ring to the right displays the next menu.



3. Turn the **JOG** dial to select the **CHARACTER SIZE**.
 - Turning the **JOG** dial to the right moves the cursor downward. Turning the **JOG** dial to the left moves the cursor upward.

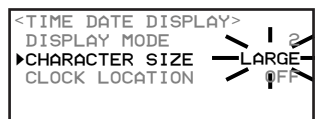


4. Turn the **SHUTTLE** ring to the right to flash the sub-item.
 - The sub-item "SMALL" will start flashing.



While the sub-item is flashing, the menu display will not disappear when you press the **SET UP** button.

5. Turn the **JOG** dial to change the sub-item to "LARGE".
 - The "LARGE" will start flashing.



6. Turn the **SHUTTLE** ring to the right to enter the selection.
 - The sub-item will stop flashing.

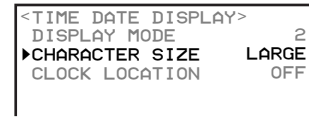


Exiting the menu

The following explains how to exit the menu after its setting by using **JOG** dial and the **SHUTTLE** ring.

Example: Exiting the <TIME DATE DISPLAY> menu after setting the character size.

1. Make sure that the sub-item of the selected item is not flashing and changed correctly.
 - If the sub-item is flashing, that item is not entered. See steps 4 on the left and enter the setting.

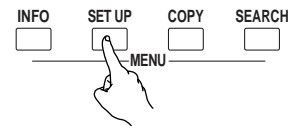


To set additional settings or to confirm the settings, turning the **SHUTTLE** ring once to the left displays the previous menu.

This operation is not available while the sub-item is flashing.

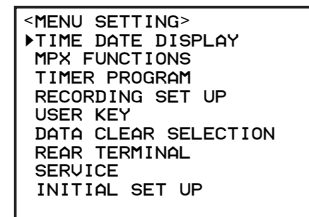


2. Turn the **SHUTTLE** ring twice to the left.
 - The display will return to the present time display.
 - Pressing the **MENU** button which is pressed to display the **MAIN MENU** also returns the menu display to the present time display.

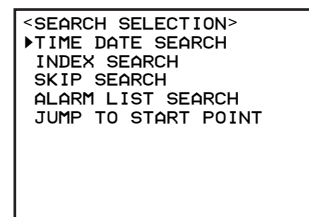


INFORMATION There are 4 different types of **MAIN MENU** as shown below:

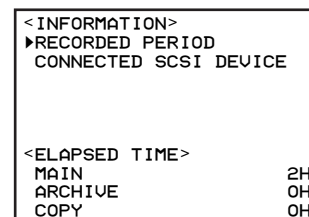
- 1) The <MENU SETTING> menu (press the **SET UP** button to display the menu).



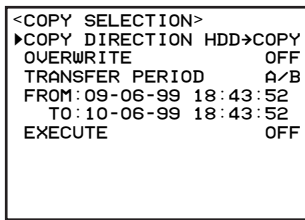
- 2) The <SEARCH SELECTION> menu (press the **SEARCH** button to display the menu).



- 3) The <INFORMATION> menu (press the **INFO** button to display the menu).



4) The <COPY SELECTION> menu (press the COPY button to display the menu).



Refer to "Menu displays" on pages 21 to 23 for the construction of the menus.

◆ Setting the present time

The correct time is necessary for all your recordings. Please follow steps below to set the present time.

Example: Setting the present time to 6:30 p.m., 15 March, 2000.

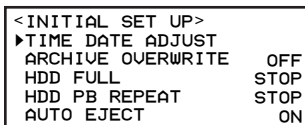
1. Press the SET UP button.

• The <MENU SETTING > menu will appear.



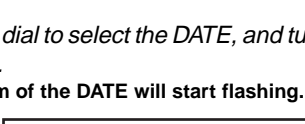
2. Turn the JOG dial to select the INITIAL SET UP, and turn the SHUTTLE ring to the right.

• The <INITIAL SET UP> menu will appear.



3. Confirm that the cursor is next to the TIME DATE ADJUST, and turn the SHUTTLE ring to the right.

• The <TIME DATE ADJUST> menu will appear.



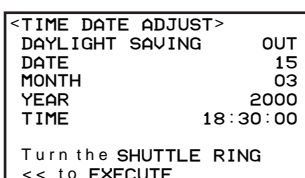
5. Turn the JOG dial to set the date number to 01, and turn the SHUTTLE ring to the right.

• The sub-item of the MONTH will start flashing.



6. Set the year, hour, 10 minute digit and minute digit in a similar fashion.

• Seconds cannot be set.
• The date number will flash again when you turn the SHUTTLE ring to the right after setting the minute.



7. Turn the SHUTTLE ring to the left to enter the setting.

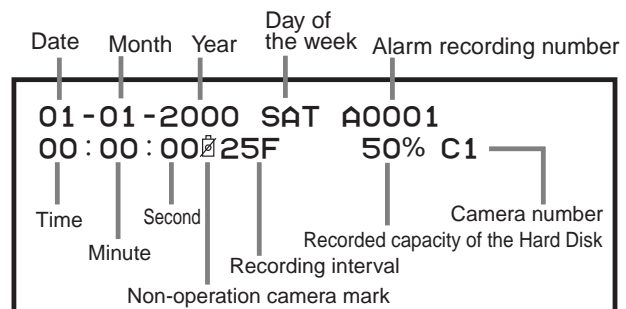
• The display will return to the <INITIAL SET UP> menu.

◆ The daylight saving

Daylight saving time setting is available. The clock is put forward one hour by setting the menu. The default setting for this function is "OUT". On the <TIME DATE ADJUST > menu, move the cursor next to DAYLIGHT SAVING and turn the SHUTTLE ring to the right. Turn the JOG dial to flash "IN" (the daylight saving function is activating) and turn the SHUTTLE ring to the right to enter the selection.

◆ Present time display

The following display will appear when this unit is turned on. (When the DISPLAY MODE is set to "3".)



Refer to "Setting Display Mode" on page 24 for detailed settings of the display.

☑ Alarm recording number will be displayed during alarm recording.

☑ If a picture of the camera which is not set to be operated is displayed on the screen, Non-operation Camera mark will be shown on the present time display.

☑ The amount of space used in the HDD is displayed during recording. When recording is stopped, this figure will not be displayed. (It will stay displayed during PAUSE.) When recording is started again, this figure will appear again after a few moments.

INFORMATION

This unit has a four-column year display. It can display dates from January 1, 1999 to December 31, 2029. It also has a built-in function to automatically calculate leap years. After December 31, 2029, the date indicator will return to 1999.

INFORMATION

The on-screen clock can be reset to the nearest hour, by applying a signal to the CLOCK ADJ terminal. For example, if the current time is 11:29:59, it will be reset to 11:00:00, and if the current time is 11:30:00, it will be reset to 12:00:00.

◆ Storage space indicator function

This unit is capable of constantly displaying the amount of data recorded in the recording device designated on-screen (i.e., the main unit or an archive device **Glossary**).

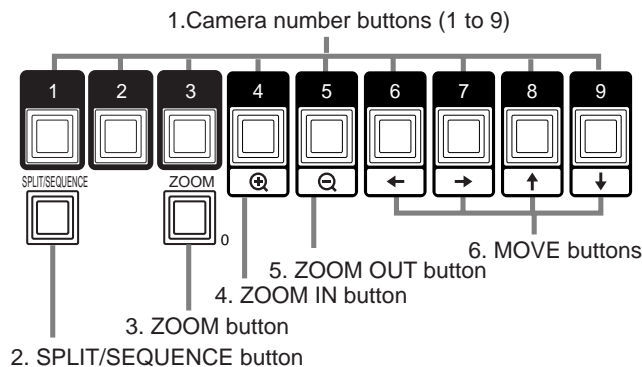
Also, when the designated remaining amount has been reached, the amount used (%) display will begin flashing. In the case of the HDD, the percent displayed is the percentage relative to the entire HDD storage capacity as recognized in the MAIN HDD setting. In the case of the backup device, the percentage is relative to the storage capacity of the medium. The following settings are necessary to bring these functions into effect.

- 1) On the <REAR TERMINAL> menu, use CAPACITY REMAIN to select the device and set the remaining capacity (refer to page 26).
- 2) On the <TIME DATE DISPLAY> menu, set the DISPLAY MODE to "3" (refer to page 24).
- 3) Select one screen using the multiplexer buttons. When using the multiple screen display, set the CH. TITLE parameter on the <MPX FUNCTIONS> menu to NONE (refer to page 39).

■ Multiplexer functions

You can use a part of multiplexer functions by using the multiplexer buttons placed on front of the unit.

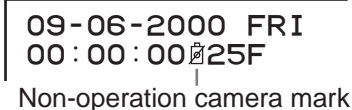
◆ Multiplexer buttons



⚠ You cannot operate the multiplexer buttons when the menu is displayed on screen. The multiplexer functions does not work when the unit is accessing the peripheral recording device or ARCHIVE button, COPY button or PLAY button is flashing.

1. Camera number buttons

By pressing these buttons, the images from cameras connected to CAMERA IN terminals at the rear of the unit will be displayed on screen. If the images of the camera that is not set to be operated is selected on the <CAMERA SETTING> menu, the Non-operation camera mark will be displayed on screen.



▶ By pressing the camera number buttons, you can view the picture from the camera even it is not set to be recorded.

2. SPLIT/SEQUENCE button

By pressing this button you can switch the display mode from SPLIT 9 which has been set on the <SPLIT SCREEN SETTING> menu, SPLIT 4 (type a, b, or c), Single-screen sequential and 4 screens sequential.

3. ZOOM button

When this button is pressed, the ZOOM POINTER (X) appears on the screen. **By pressing this button, Camera number buttons 4 to 9 change its function as follows:**

4. ZOOM IN button (Camera number button 4)

Press this button after pressing ZOOM button, the displayed picture will be enlarged by 2 steps: twice as large and 4 times as large as the original picture size. The enlarging ratio will be displayed on the top left-hand corner of the screen.

5. ZOOM OUT button (Camera number button 5)

Press this button anytime after operating ZOOM button and ZOOM IN button, the picture size will be reduced in 2 steps from the enlarged picture. The enlargement ratio will be displayed on the top left-hand corner of the screen.

6. MOVE buttons (Camera number buttons 6 to 9)

By pressing these buttons you can move the ZOOM POINTER (X). The picture will be enlarged/reduced from this pointer in the centre. After enlarging/reducing the size of the picture, you can also move the whole picture by pressing these buttons. For more details please refer to "Multiplexer buttons" on page 36.

■ Basic recordings

The correct settings are necessary for your recordings. For details of each setting, please refer to the following pages of this instruction manual:

▶ The <HDD FULL> menu setting: sets the movement of the unit when it runs out of the recording capacity of HDD during recording. Please refer to page 30, "HDD repeat recording" setting.

▶ The <CAMERA SETTING> menu setting: sets the cameras to be operated from all connected cameras for each camera usage. Please refer to page 38, "Camera usage setting".

▶ The <CAMERA USAGE> menu setting: chooses and sets the camera usage from A, B or C on the <CAMERA SETTING> menu. Please refer to page 38, "Camera usage setting".

After confirming all settings of recording, please proceed as written on the right.

◆ **Setting the recording interval**

Example: Setting the recording interval to “12.5F” (the default setting is “25F”).

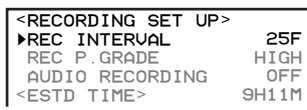
1. Turn the unit on after turning the peripheral recording device on.

☒ If the <DEVICE CHECK> menu appears at this stage, the setting of the peripheral recording device may have been changed. For details please refer to “When to install the extra hard disk drive or change the ID number” on page 19.

2. Press the SET UP button to display the <MENU SETTING> menu.

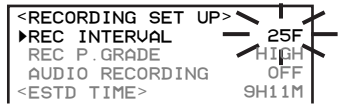
3. Turn the JOG dial to move the cursor (▶) to RECORDING SET UP then turn the SHUTTLE ring to the right.

- The <RECORDING SET UP> menu appears.



4. Check that the cursor is next to the REC INTERVAL and turn the SHUTTLE ring to the right.

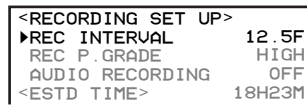
- The sub-item of REC INTERVAL will start flashing.



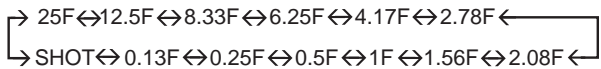
☒ The setting you are making here is only for the normal recording, NOT for the timer recording and the alarm recording. You need to make the timer recording settings and the alarm recording settings on the <TIMER PROGRAM> menu. For details please refer to “Various recording settings” on page 33.

5. Display 12.5F by turning the JOG dial then turn the SHUTTLE ring to the right.

- The flashing will stop. Now the setting has been completed.



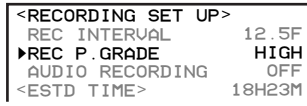
Other settings By turning the JOG dial, the setting will be changed as below:



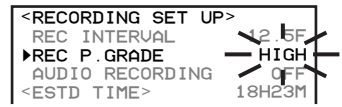
◆ **Changing the recording picture grade**

Example: Setting the recording picture grade to “STANDARD” (the default setting is “HIGH”).

1. After step 5 of REC INTERVAL setting procedures above, turn the JOG dial and move the cursor to “REC P. GRADE”.

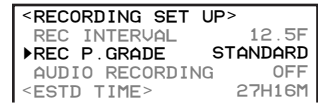


2. Turn the SHUTTLE ring to the right to flash the sub-item.

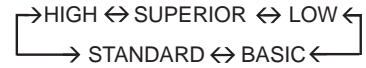


3. Turn the JOG dial to display STANDARD then turn the SHUTTLE ring to the right.

- The “STANDARD” is now selected.

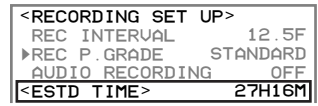


☒ By turning the JOG dial, the recording picture grade setting will be changed as below:



4. Check the estimated recording time.

• After setting the recording interval, the <ESTD TIME> will be displayed. By changing recording settings, <ESTD TIME> will change its length of time (Alarm recording setting is not concerned with this).



☒ The available recording time will be changed depending on the setting of the recording interval and the recording picture grade. This estimated recording time display will include the additional HDD which has been built to the Unit. The estimated time may not show the exact time if the recording interval was set to long. For available recording time, please refer to “Recording time table” on pages 71 and 72.

5. Press the SET UP button to go back to the present time display.

- Press the camera number button and confirm if there is a picture input to the CH you have selected to be recorded.

6. Press the REC button.

- The REC button starts illuminating and the recording starts.
- If you press the PAUSE button during recording, recording will be in pause mode. To release it, press the pause button again (this PAUSE button only works when built-in HDD is selected as a playback device).

Ⓛ Please refer to “Choosing among the devices” on page 51 for selecting a playback device.

7. Press the STOP button to stop recording.

- The REC button will stop illuminating.

This recording time lists recording times for when the capacity of the built-in HDD is 30.0 GB. Please note that alterations to the built-in HDD may contribute to slightly longer recording times than those listed on this recording time.

Using the audio recording

This unit can record an audio with an image. The following explains how to set the AUDIO RECORDING to "ON" or "OFF".

Example: Setting the AUDIO RECORDING to "ON" (the default setting is "OFF").

1. Press the SET UP button to display the <MENU SETTING> menu.

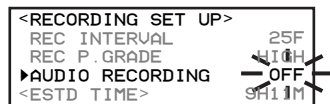
2. Turn the JOG dial to select the RECORDING SET UP, and turn the SHUTTLE ring to the right.

- The <RECORDING SET UP> menu will appear.



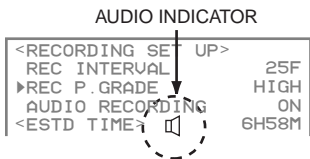
3. Turn the JOG dial to select the AUDIO RECORDING, and turn the SHUTTLE ring to the right.

- The sub-item of the AUDIO RECORDING will start flashing.



4. Turn the JOG dial to change the sub-item to ON, and turn the SHUTTLE ring to the right to enter the selection.

- After entering the selection, the available recording time and AUDIO INDICATOR will appear in the <ESTD TIME>.



Depending on the setting of the recording picture grade and the recording interval, the audio recording may not be available. If so, the Not audio recordable mark "⏏" will appear next to the <ESTD TIME> in the <RECORDING SET UP> menu.

5. Turn the SHUTTLE ring to the left, or press the SET UP button.

Basic playback

The recorded image can be played back in various ways. In this Basic Operations, the most basic playback function is explained. Refer to the pages shown below for the other playback functions.

Please refer to page 49 for Various playback functions.

1. Turn on the power of the connected peripheral recording device, then turn this unit on.

2. Select the playback device.

- Press the PLAY DEVICE button on the front panel to select the playback device. The indicator of the selected device will illuminate. (The indicator will not switch when a peripheral recording device is not connected.)



3. Press the PLAY button.

- After displaying the pausing image, playback will begin.

The oldest recording of HDD will be played back when pressing the PLAY button for the first time after the power is turned on or the recording is finished. If you want to playback the newest recorded data, press the REV PLAY button BEFORE pressing the PLAY button after finishing recording.

4. Press the PAUSE button to pause playback.

- Press the PAUSE button again to resume playback.

The playback will stop automatically at the end of HDD (if the extra hard disk drive is installed, the hard disk drive of the biggest ID number) or the end of the recorded part when the HDD PB REPEAT in the INITIAL SET UP is set to "OFF". The recorded data is played back repeatedly when the HDD PB REPEAT is set to "REPEAT". Refer to "HDD repeat playback" on page 30 for details.

5. Press the STOP button to stop playback.

INFORMATION

When recording by using more than one camera, the playback interval per camera will be the time that multiplies the recording interval by the number of the cameras.

Basic searching function

This unit has various functions for searching the specific point of the data. The following explains the basic searching function, time date search. By using this function, you can search the specified point of the data by setting the date, hour, and minutes. Refer to pages 49 to 51 for the other searching functions.

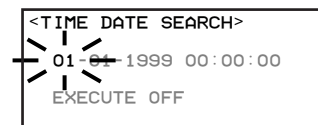
Time date search

Example: To search a recording which was made on 17 May 2000, 9:25:40 p.m..

1. Press the SEARCH button to display the <SEARCH SELECTION> menu.

2. Make sure that the cursor (▶) is set to the <TIME DATE SEARCH> menu, and turn the SHUTTLE ring to the right.

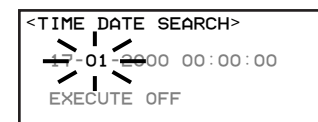
- The <TIME DATE SEARCH> menu will appear and the date number will start flashing.



To exit the <TIME DATE SEARCH> menu without activating the search, press the SEARCH button on the front of the unit.

3. Turn the JOG dial to set the date number to 17.

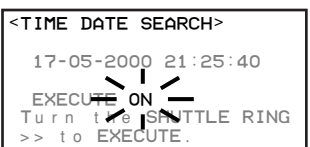
- Turn the SHUTTLE ring to the right. The next item will start flashing.



4. Set the month, year, hour, 10 minutes digit, minute digit, 10 seconds digit and second digit in a similar fashion.
- The sub-item "OFF" will start flashing.



5. Turn the JOG dial to select "ON".



6. Turn the SHUTTLE ring to the right to execute.
- The time date search will start and pause the playback display at the specified time point (or the nearest point from the specified time).
 - The searched image will be displayed in SPLIT 9 screen.

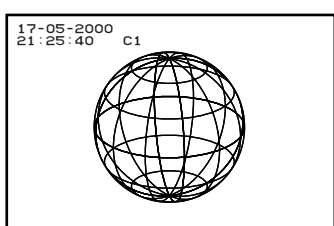


☑ If there is no recording or no data which is recorded on the date you have set, the time date search will not be activated and the year number will start flashing again.

☑ If there is no data that is recorded on the time you have set, the image which is recorded on the nearest time from the time you have set will be displayed on the paused screen.

☑ The time date search function may not work correctly depending on the condition of the recording.

7. To change the search image from SPLIT 9 screen to the single screen, select the camera number by pressing the CAMERA NUMBER button on the front of this unit.
- The selected image will be shown on the Single screen mode.



8. To play back the searched image.
- Press either the PLAY button or the PAUSE button.

☑ Refer to page 49 for details on Various playback.

INFORMATION Press the SEARCH button to clear the <TIME DATE SEARCH> menu.

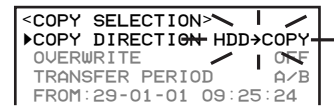
9. Press the STOP button to stop playback and still frame mode.
- Press the SEARCH button, the display will revert to its original state.

■ Copying the data from HDD to a copy device or an archive device

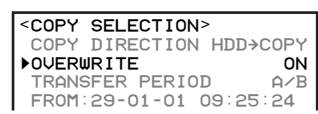
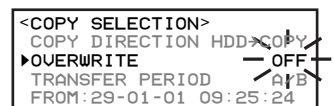
This unit can copy (all backup) the data which is recorded on hard disk drive to an archive device media or a copy device media. The following explains how to copy the data manually.

☑ Make sure that the peripheral recording device is connected and set correctly before you start copying.

1. Turn on the power of the peripheral recording device connected to the unit.
2. Turn on the power of the unit.
3. Insert a media of an archive device **Glossary** or a copy device **Glossary**.
4. Press the COPY button.
 - The <COPY SELECTION> menu will appear.
5. Make sure that the cursor (▶) is next to the COPY DIRECTION, and turn the SHUTTLE ring to the right.
 - The sub-item will be different depending on the connected devices.
 - Use JOG dial to choose the desired device to copy to and turn the SHUTTLE ring to the right to enter the selection.



6. Turn the JOG dial to move the cursor to OVERWRITE and turn the SHUTTLE ring to the right.
- The default setting is "OFF". You have to select whether to overwrite previous recorded data (ON) or copying from the end of the recording exists on the media (OFF). Turn the JOG dial to make the desired setting to flash, then turn the SHUTTLE ring to the right to enter the selection.



INFORMATION The following sub-items can be set for the overwrite copying:

- If you set to "ON", the copy will start from the very beginning of the media.
- If you set to "OFF", the copy will start from the end of the recorded part of the media.

Basic Operations (continued)

7. Set the TRANSFER PERIOD.

- Turn the JOG dial to move the cursor next to the “TRANSFER PERIOD” then turn the SHUTTLE ring to the right. The sub-item of “MAN” (manual) will start flashing.

```

<COPY SELECTION>
COPY DIRECTION HDD→COPY
OVERWRITE          OFF
▶TRANSFER PERIOD  MAN
FROM:29-01-01 09:25:24
    
```

Other settings

The following sub-item can be set for the “TRANSFER PERIOD” of copying. By turning the JOG dial, the sub-item will be changed as below:

```

→MAN↔A/B↔S/E←
    
```

“MAN”: Set the start time and end time of copying manually.

“A/B”: Copy data which is selected by USER KEY (refer to “User set up operation” on page 25).

“S/E”: Copy all data from the device which is recognised as a device to copy from.

8. Turn the JOG dial to move the cursor to the start time, and set the date, month, year, hour, minute and second of the data to copy from.

- Turn the JOG dial to set the start time.
- Turn the SHUTTLE ring to the right to enter the selection.

```

▶TRANSFER PERIOD  MAN
FROM:29-01-01 09:25:24
TO:29-01-01 09:25:24
EXECUTE          OFF
    
```

9. Turn the JOG dial to move the cursor to the stop time, and set the date, month, year, hour, minutes and second of the data to copy to.

- Turn the JOG dial to set the stop time.
- Turn the SHUTTLE ring to the right to enter the selection.

```

TRANSFER PERIOD  MAN
FROM:29-03-01 00:25:24
▶TO:29-03-01 01:25:24
EXECUTE          OFF
    
```

10. Set the cursor to EXECUTE and turn the SHUTTLE ring to the right.

- The sub-item “OFF” will start flashing.

11. Turn the JOG dial to select “ON”.

```

TRANSFER PERIOD  MAN
FROM:29-03-01 00:25:24
TO:29-03-01 01:25:24
▶EXECUTE          ON
Turn the SHUTTLE RING
>> to EXECUTE.
    
```

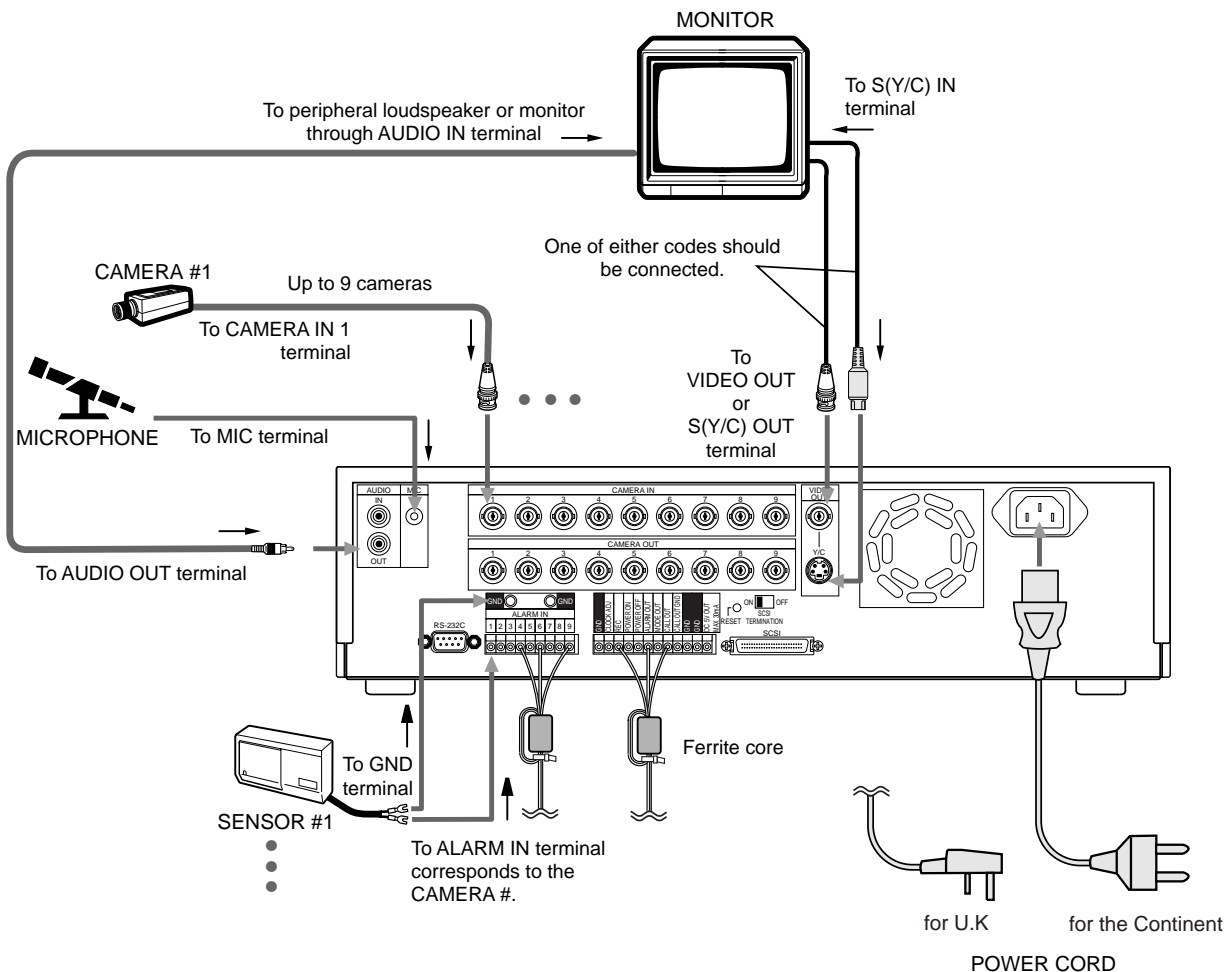
12. Turn the SHUTTLE ring to the right to start copying.

- Press the WARNING RESET button to stop copying.

INFORMATION

You can copy the data even during recording.

■ Connecting with CCTV camera, monitor, sensor, the electric power supply and the ferrite core

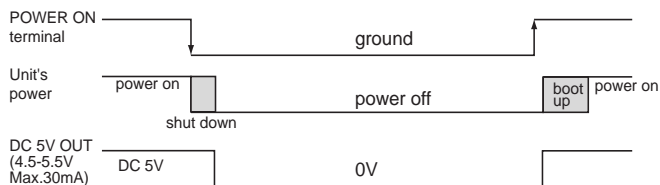


■ Turning ON/OFF this Unit by peripheral source

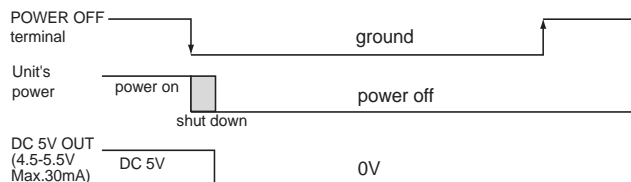
By using POWER ON/POWER OFF terminal on I/O terminals, it is possible to turn on/off this unit externally. Turning on/off this unit is related to the output of DC 5V OUT terminal and this information can be transferred externally.

The relationship between POWER ON/POWER OFF terminal, DC 5V OUT terminal and turning on/off this unit is shown in the diagram. Please use suitable peripheral devices to connect with this unit.

Using POWER ON terminal

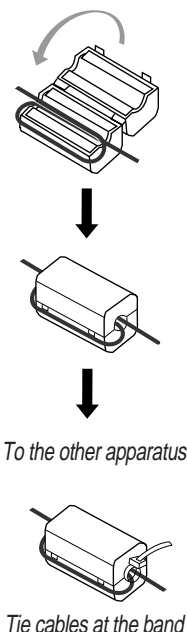


Using POWER OFF terminal



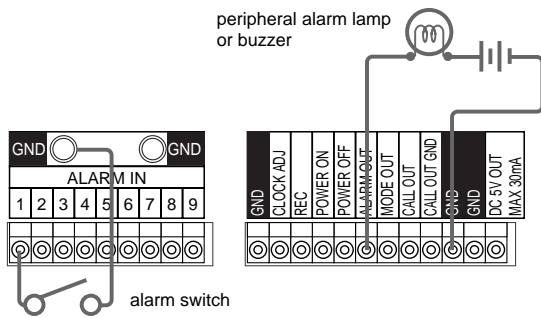
■ Attaching the ferrite core

To avoid interference from the cables connected to the unit against other apparatus, attach the ferrite core to all cables connected to the control terminal cables and ALARM IN terminals (GND terminals) as indicated and place it as close to the unit as possible. Use the ferrite core to bundle together all of the cables connected to each terminal.



Alarm Recording Connection

Example: When using the alarm switch corresponding to camera number 1.



Connecting with peripheral recording devices

By connecting peripheral recording devices to the main unit through its SCSI interface (SCSI-II half-pitch 50-pin), storage space can be increased and archive and copying functions can be performed. Please consult with your retailer for information regarding which peripheral recording devices can be used.

Make sure to turn off this Unit when connecting with peripheral recording devices.

Type of peripheral devices to be connected

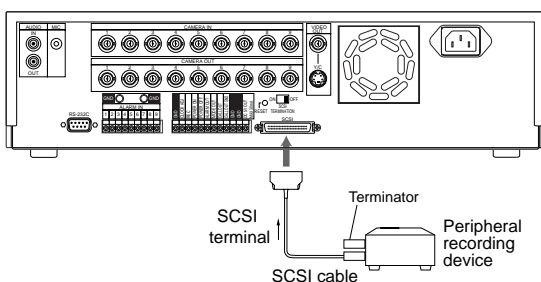
Peripheral devices that can be connected to this unit include hard disk drives (HDD), DDS drives (DDS-2, DDS-3), magneto-optical disks (640MB MO, overwriteable), etc. When the unit is connected to peripheral devices, its PLAY DEVICE button can be used to eject media from a designated device. Response may be slow depending on the type of peripheral device used. In this case, the indicator light on the designating playback device will begin flashing; other operations cannot be performed when in this condition. Resume operation only after the playback device's indicator light illuminate. Please use the unit's PLAY DEVICE button even if the peripheral device is equipped with its own eject button.

When using a DDS Drive, use DDS-1, DDS-2 or DDS-3 cartridge. Please do not use any other medium of recording such as DAT cassette for music, etc.

Usable cables

Connections between the unit and its peripherals are made using SCSI cables available on the market. As SCSI cables differ with each connecting device, please check for the appropriate pin arrangement before use. Please consult with your retailer with regard to the length of usable cables.

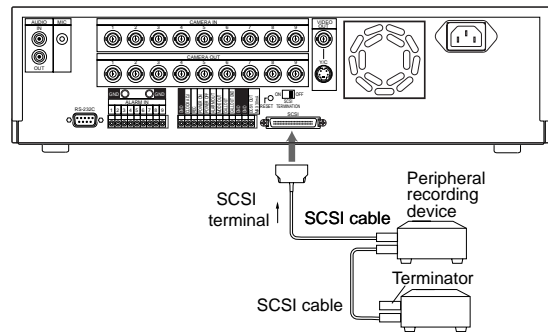
Connection when using 1 peripheral recording device



Warning concerning connections

A terminator is necessary to maintain proper electrical connections to the peripheral devices. Please make sure that the terminator is always attached to the last peripheral device. (Depending on the device, the terminator may be built into the device. In this case, please set the built-in terminator correctly.) Please use an active terminator for SCSI.

Connection when using several peripheral recording devices



Please set the SCSI ID number to suit the use/purpose of the peripheral recording device. Refer to the operation manual of each peripheral recording device for setting the SCSI ID Number.

SCSI ID Number	Connected device	Purpose	Notes
0	Built-in HDD	Recording	
1	HDD	HDD expansion/ HDD recording	Maximum recording capacity is 34GB per unit.
2	HDD		
3	HDD		
4	DDS/RDD	Archive	Will be recognized as an archive device.
5	DDS/RDD	Copy	Will be recognized as a copy device.

* RDD: Abbreviation of removable disk drive.

Select a disk drive which can eject the recording medium.

* HDD: Abbreviation of hard disk drives.

Please use those which include self-defect capabilities.

* DDS: Abbreviation of digital data storage.

Select a recording medium which uses tape.

* When hard disk drives are connected to ID1, ID2, or ID3, the displayed estimates of recording time will include the expanded memory. When storage capacity is expanded to its maximum, however, there will be instances where the times set for long recording intervals are not displayed correctly.

INFORMATION

Please use the devices we have recommended for this unit's peripheral recording devices. Please consult with your retailer for details.

INFORMATION

Storage capacity is indicated in gigabytes (GB). (1GB = 1000 x 1000 x 1000 bytes.)

For details of functions of the archive device and the copy device, please refer to "Glossary" on page 74.

■ When to install the extra hard disk drive or change the ID number

Example: When to install the 9GB hard disk drive to ID1.

When the power of the unit is turned on, the unit will automatically detect peripheral recording devices connected to its SCSI terminal. The system must be initialized each time hard disks are added or erased, connections are made, ID numbers are altered, etc.

1. Press the POWER button.

• If the change is recognized, the screen below will appear.

```
<DEVICE CHECK>
SCSI ID0:HDD(30GB)
      ID1:HDD( 9GB)
      ID2:NONE
      ID3:NONE
      ID4:NONE
      ID5:NONE
▶PWR-OFF INITIALIZE
  BOOT UP DELAY 00
```

2. Make sure that the connected device is recognized correctly.

• If the connected device is not displayed correctly, make sure that the cursor is set to POWER OFF and turn the SHUTTLE ring twice to the right. The power of this unit will be turned off. Make sure that the connection of the external device and the setting of the SCSI ID number is correct.

```
<DEVICE CHECK>
SCSI ID0:HDD(30GB)
      ID1:HDD( 9GB)
      ID2:NONE
      ID3:NONE
      ID4:NONE
      ID5:NONE
▶PWR-OFF INITIALIZE
  BOOT UP DELAY 00
```

3. Turn the JOG dial to select INITIALIZE.

```
      ID5:NONE
PWR-OFF ▶INITIALIZE
  BOOT UP DELAY 00
```

4. Turn the SHUTTLE ring to the right.

• Turn the SHUTTLE ring to the right when the "Turn the SHUTTLE RING >> to EXECUTE." is displayed.

The unit will initialize its system when data is erased from either its built-in hard disk or hard disks connected to ID0 through ID3. Data is not erased from hard disks connected to ID4 and ID5.

! If the screen below appears after performing Step 1, it is possible that there is either a poor connection, overlapping SCSI ID numbers, or an error in SCSI ID number settings. In this case, turn the SHUTTLE ring twice in the clockwise direction. Main power to the unit will turn off; please then check the connection and SCSI ID settings.

```
      ID4:RDD
      ID5:DDS
▶PWR-OFF
  BOOT UP DELAY 00
```

■ When to remove the hard disk drive after initializing the system

1. Press the POWER button.

• The screen below will appear. It will not appear when you remove the DDS or RDD which is connected to ID4 or ID 5.

```
      ID5:RDD
▶PWR-OFF CONFIG.
  BOOT UP DELAY 00
```

2. Make sure that the connected device is recognized correctly.

3. Turn the JOG dial to select "CONFIG.," and turn the SHUTTLE ring to the right twice.

! When CONFIG. is selected, the unit will save the data recorded on the connected peripheral recording device (which has not been removed) as well as the data recorded on the built-in HDD. Data recorded on a removed peripheral recording device is not affected.

4. The unit will start setting up.

■ Setting the capacity limit of the hard disk drive

You cannot make a backup of all the recorded data at one time if the recorded capacity of the hard disk drive is larger than the capacity of the archive device medium. You can set the limitation of the recorded capacity of the hard disk drive in order to make a backup of all the recorded data at one time.

Example: Setting the limitation of the hard disk drive capacity to 4GB.

1. Press the POWER button while pressing the REC button to turn the power on.

• The <DEVICE CHECK> menu will appear.

```
<DEVICE CHECK>
SCSI ID0:HDD(30GB)
      ID1:HDD( 9GB)
      ID2:NONE
      ID3:NONE
      ID4:NONE
      ID5:NONE
▶LIMIT OFF INITIALIZE
  BOOT UP DELAY 00
```

2. Turn the JOG dial to select LIMIT, and turn the SHUTTLE ring to the right.

```
      ID5:RDD
▶LIMIT OFF INITIALIZE
  BOOT UP DELAY 00
```

3. Turn the JOG dial to select the desired capacity, and turn the SHUTTLE ring to the right to enter the selection.

The sub-items of the capacity limit are as follows:

"OFF": The hard disk drive capacity will not be limited.

"2GB", "4GB", "12GB", "25GB": Limit recorded capacity of HDD(hard disk drive) to 2GB, 4GB, 12GB, 25GB. The CALL OUT signal will be emitted when the recorded capacity reaches the preset amount.

You can set the capacity limit to "32GB" when you install the extra hard disk drive.

Initial settings (continued)

4. Turn the JOG dial to move the cursor to INITIALIZE, and turn the SHUTTLE ring twice to the right.

```

ID5:RDD
LIMIT 4GB ▶INITIALIZE
BOOT UP DELAY 00
Turn the SHUTTLE RING
>> to EXECUTE.
    
```

☑ The unit will initialize its system when data is erased from either its built-in hard disk or hard disks connected to ID0 through ID3. Data is not erased from hard disks connected to ID4 and ID5. Press the Power button when you wish to exit this screen without initializing data. Settings, however, will not be altered.

☑ When you wish to reset storage capacity limits, first turn off the main power, then, keeping the REC button pressed, turn on the main power again. The <DEVICE CHECK> menu will appear, and settings can then be altered.

5. The unit will start setting up.

■ Confirming the connected device

1. Press the INFO button.

• The <INFORMATION> menu will appear.

2. Turn the JOG dial to select CONNECTED SCSI DEVICE.

```

<INFORMATION>
RECORDED PERIOD
▶CONNECTED SCSI DEVICE
    
```

3. Turn the SHUTTLE ring to the right.

• The <CONNECTED SCSI DEVICE> menu will appear.

```

<CONNECTED SCSI DEVICE>
SCSI ID0:HDD(30GB)
ID1:HDD( 9GB)
ID2:NONE
ID3:NONE
ID4:NONE
ID5:NONE

LIMIT 4GB
    
```

☑ Parameters for ID4 and ID5 will display "NONE" when no archive or copying devices are connected to the unit.

■ Setting this unit to delay the boot up time

Because the unit searches for connected devices when power is turned on, peripheral devices must be turned on before power is turned on to the digital recorder. To handle peripherals which take a long time to start up, the unit can be preset to delay the timing of its search for these devices.

1. Press the POWER button while pressing the REC button to turn the power on.

• The <DEVICE CHECK> menu will appear.

```

<DEVICE CHECK>
SCSI ID0:HDD(30GB)
ID1:HDD( 9GB)
ID2:NONE
ID3:NONE
ID4:NONE
ID5:NONE
▶LIMIT OFF INITIALIZE
BOOT UP DELAY 00
    
```

2. Turn the JOG dial to select BOOT UP DELAY, and turn the SHUTTLE ring to the right.

• The sub-item of the BOOT UP DELAY will start flashing.

```

ID5:RDD
LIMIT OFF INITIALIZE
▶BOOT UP DELAY 00
    
```

3. Turn the JOG dial to set the delay time, and turn the SHUTTLE ring to the right to enter the selection.

• You can set up to 99 seconds.

```

ID5:RDD
LIMIT OFF INITIALIZE
▶BOOT UP DELAY 10
    
```

☑ When BOOT UP DELAY is set and timer recording is performed, the unit will begin recording later than the time set as the recording time.

4. Press the POWER button.

• The power of this unit will be turned off.

5. Press the POWER button again.

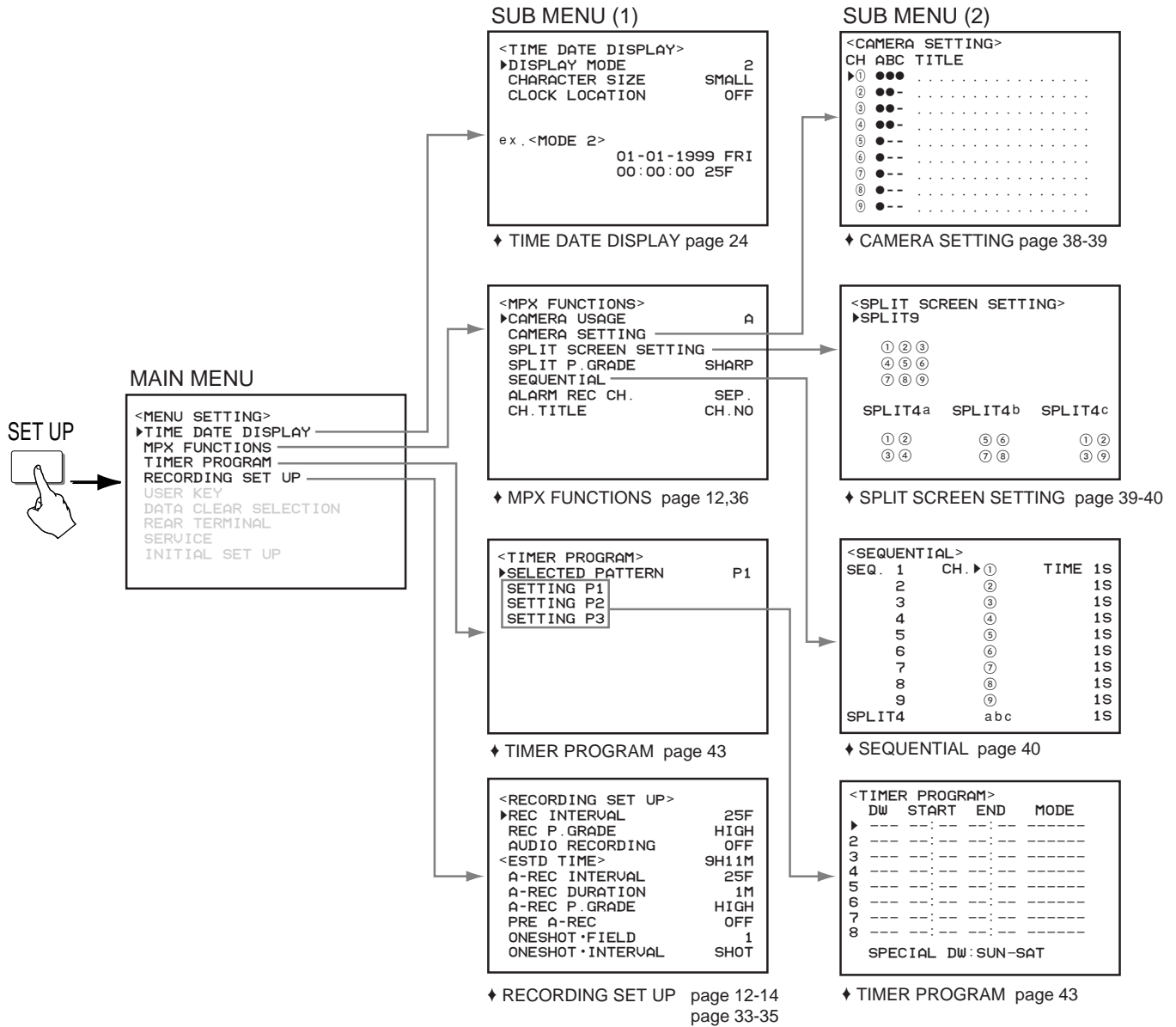
• This unit will start setting up after the preset delayed time has passed.

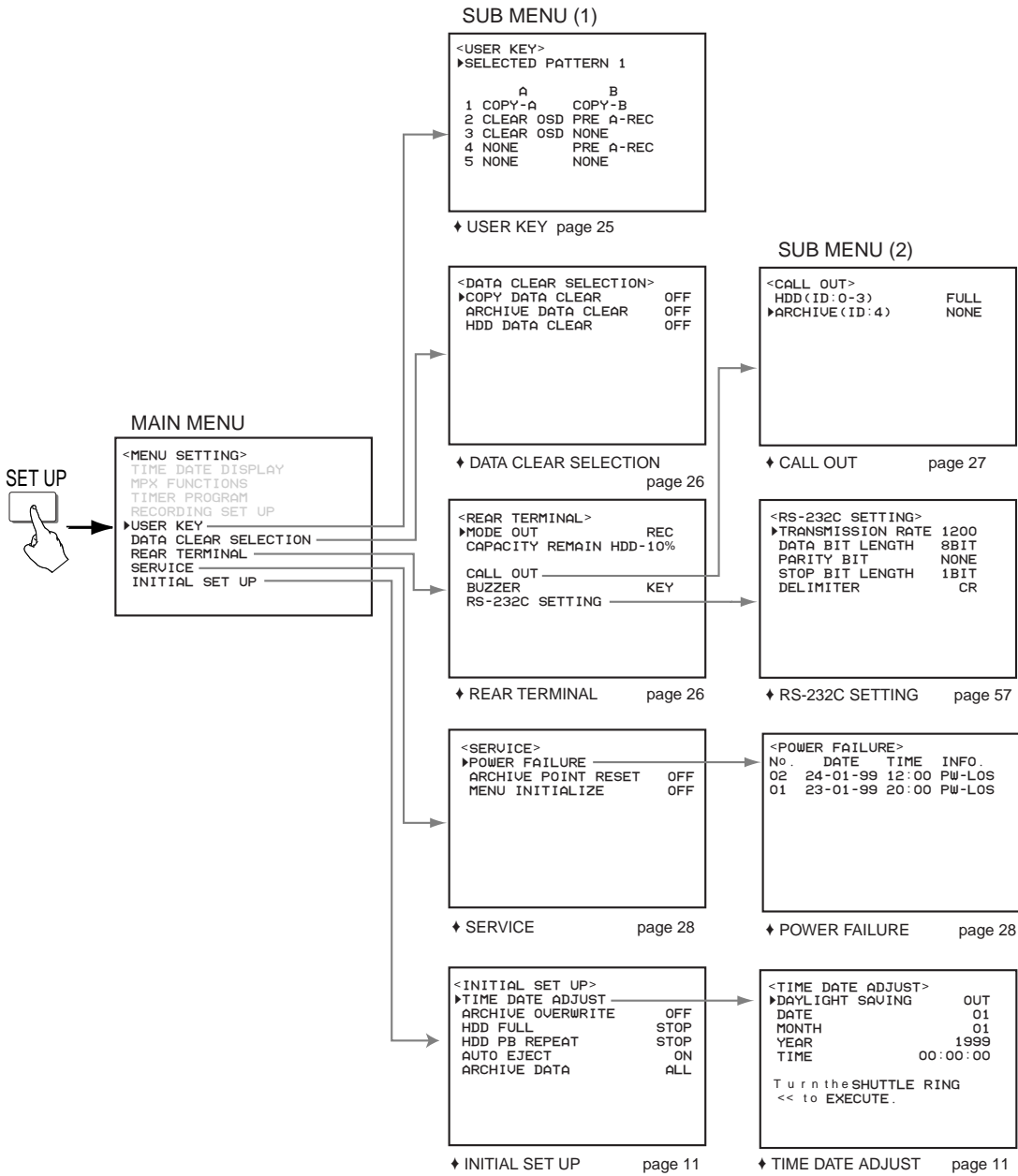
☑ If a different peripheral recording device was connected from the last time the unit was booted up, the <DEVICE CHECK> menu will appear.

■ MENU SETTING

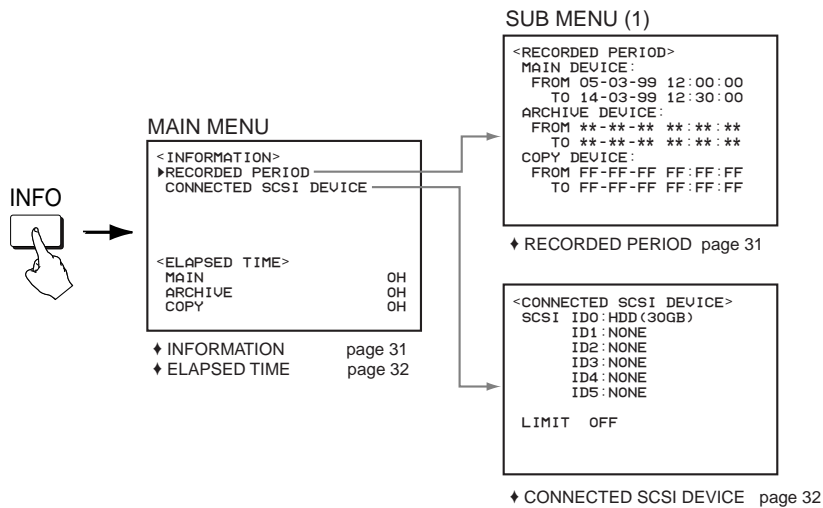
You can set the basic settings for using this unit in the MENU SETTING. Refer to pages shown below for details.

▶ During playback, recording, pre-alarm recording stand-by mode and accessing peripheral recording device, you cannot change setting of some MENUs.

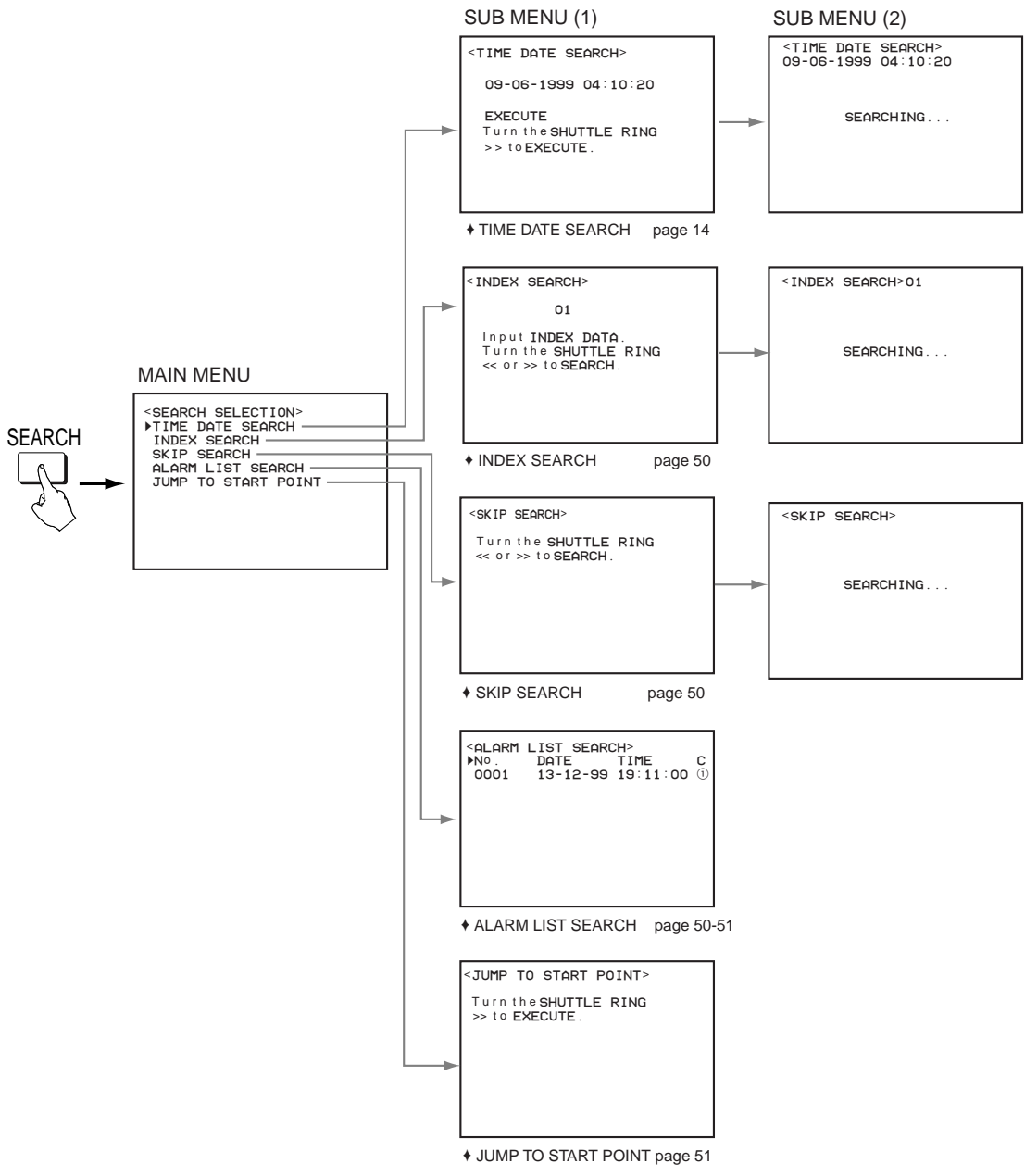




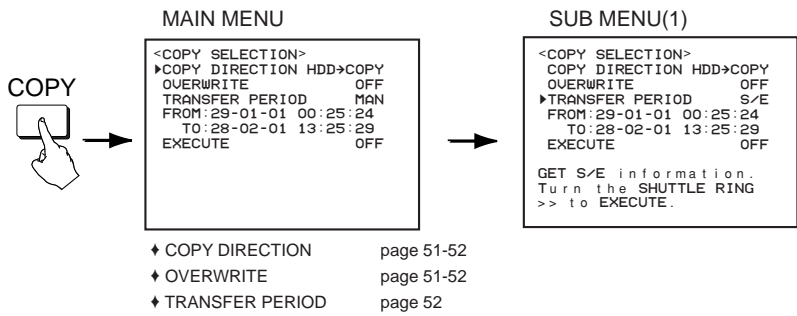
■ INFORMATION MENU



SEARCH SELECTION MENU



COPY SELECTION MENU



How to set up / Various settings

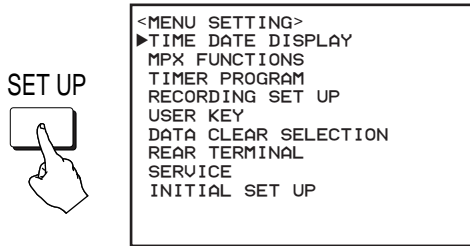
■ How to display menus

As shown in the menu displayed on pages 21 to 23, the menus are divided into several layers. The following steps show how to display the desired menu on the screen.

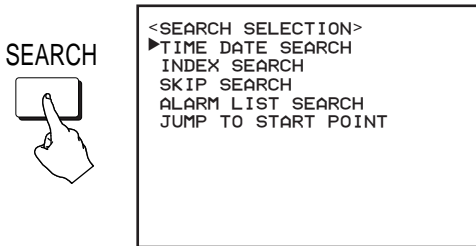
☑ When any of the menu displays are shown on the screen, the SPLIT/SEQUENCE button, the Camera number button and the ZOOM button do not work.

1. Find the menu you want to view from the menu overview on pages 21 to 23.

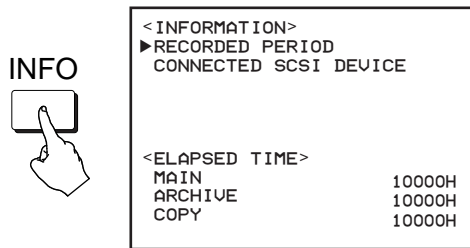
2. When the menu you want to view is under:
 • The <MENU SETTING> menu, press the SET UP button on the front panel of this unit.



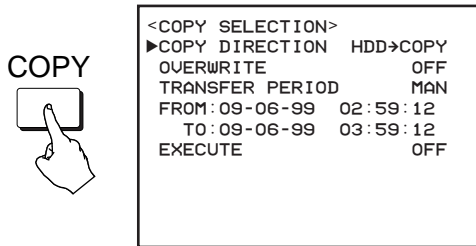
• The <SEARCH SELECTION> menu, press the SEARCH button on the front panel of this unit.



• The <INFORMATION> menu, press the INFO button on the front panel of this unit.



• The <COPY SELECTION> menu, press the COPY button on the front panel of this unit.



Then, the main menu of each category will be shown on the screen.

3. Turn the JOG dial until the cursor (▶) is next to the desired item and turn the SHUTTLE ring to the right to show its setting.

• Please refer to the relevant section of this manual for the detailed setting of each menu.

■ Setting Display Mode

Type and setting of display.

Display Mode	Display	Sample
1	Date, Present time, Camera number display	09-06-1999 11:39:10 C1
2	Date, Day of the week, Present time, Recording interval, Camera number display	09-06-1999 WED 11:39:10 12.5F C1
3	Date, Day of the week, Present time, Recording interval, Camera number display, Recording capacity of HDD will be displayed.	09-06-1999 WED 11:39:10 12.5F 89% C1
4	No indication (When alarm signal is input, Date, Day of the week, Present time, Recording interval will be displayed.)	
5	No indication (When warning signal is input, warning indicator will be displayed.)	
6	No indication	

Display mode 2 to 5 are only available when single screen is displayed or "CH. TITLE" is set to "NONE" on the <MPX DISPLAY> menu.

Example: Selecting "Display Mode 3" (the default setting is "Display Mode 2").

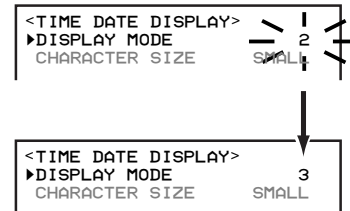
1. Display the <MENU SETTING> menu on the screen. Check the cursor is next to TIME DATE DISPLAY and turn the SHUTTLE ring to the right.

• The <TIME DATE DISPLAY> menu appears.

2. Check that the cursor is next to "DISPLAY MODE" and turn the SHUTTLE ring to the right.

• The sub-item will start flashing.

3. Turn the JOG dial until "3" flashes and turn the SHUTTLE ring to the right.



4. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Setting character size

Refer to page 10 "Basic Operations" for the setting of character size.

◆ Setting Display Position

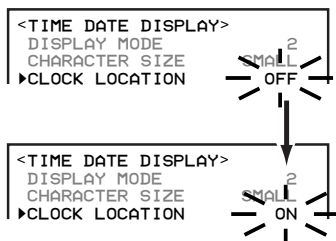
1. Display the <TIME DATE DISPLAY > menu as described in STEPS 1 and 2 written on the left.

2. Turn the JOG dial until the cursor is next to "CLOCK LOCATION" and turn the SHUTTLE ring to the right.

• The sub-item will start flashing.

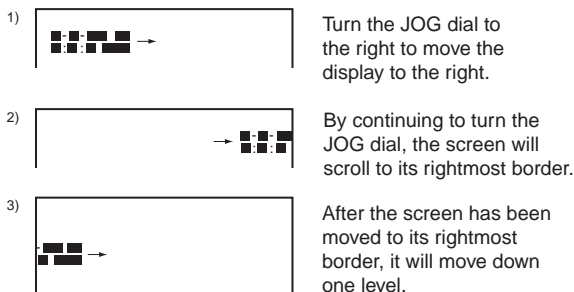
3. Turn the JOG dial until "ON" flashes and turn the SHUTTLE ring to the right.

- The monitor display switches to the display position setting menu.



4. Turn the JOG dial until the present time display moves to the desired position.

- The present time display moves to the right when turning the JOG dial to the right. When the time display reaches the right edge of the screen, it goes down to the next line.
- The time display moves to the left when turning the JOG dial to the left. When the time display reaches the left edge of the screen, it goes up to the next line.



5. When the time display reaches the desired position, turn the SHUTTLE ring to the right.

➡ The display position can be changed when the setting of "CH. TITLE" in the <MPX FUNCTIONS> menu is as follows:

- When set to "NONE", the display position can be changed on single-screen, SPLIT 4 and SPLIT 9 screen.
- When set to "CH.NO" the display position can be changed on single screen only.

If "TITLE" is selected, the display position cannot be changed.

■ Setting Multiplexer functions

Refer to page 12, "Multiplexer functions" for details.

■ Setting Timer program

Refer to page 43, "Using the Timer" for details.

■ Setting recording functions

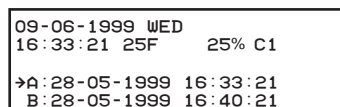
Refer to page 33, "Various recording settings" for details.

■ User set up operation

The following functions can be operated to USER SET UP keys, A and B. Use of these buttons enables you to operate functions shown below by pressing one of those. Select 1 of 5 patterns shown right.

Pattern	USER KEY A	USER KEY B	Settings
1	COPY START	COPY END	Set the start point of copy by USER KEY A and end point by USER KEY B.
2	OSD CLEAR	PRE-ALARM RECORDING	Turn OSD (On Screen Displays) ON/OFF by USER KEY A. Turn pre-alarm recording ON/OFF by USER KEY B.
3	OSD CLEAR	(NONE)	Turn OSD (On Screen Displays) ON/OFF by USER KEY A.
4	(NONE)	PRE-ALARM RECORDING	Turn pre-alarm recording ON/OFF by USER KEY B.
5	(NONE)	(NONE)	No setting for USER KEYS.

➡ During playback, press button A at the point you want to start copying. Likewise, press button B at the point you want to end copying. After this setting, the display as shown below appears on the screen. To avoid an error on copy setting, make sure to set the start point to copy before setting the end point.

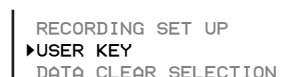


INFORMATION

OSD indicates characters shown on the screen. If you choose "SELECTED PATTERN 2" and press button A, the present time display and camera number will be cleared from the screen. Press button A or any other button once to show the display back to the screen. You can turn pre-alarm on/off by pressing button B, if you set PRE A-REC to other than "OFF". By pressing button B, the pre-alarm is set to on and the pre-alarm rec indicator illuminates.

Example: Setting USER KEY to "3" (the default setting is "1").

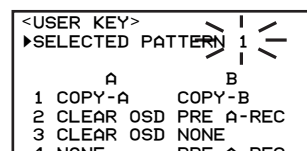
1. Display the <MENU SETTING> menu and turn the JOG dial until the cursor is at "USER KEY".



2. Turn the SHUTTLE ring to the right to show the <USER KEY> menu.

3. Check that the cursor is next to SELECTED PATTERN then turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



4. Turn the JOG dial to show "3" and turn the SHUTTLE ring to the right.

5. Turn the SHUTTLE ring to the left or press the SET UP button.

- The <USER KEY> menu will disappear.

■ Data Clear Selection

This unit provides a menu which you can select the data you want to erase.

Example: Clearing the data recorded on main HDD.

1. Display the <MENU SETTING> menu and turn the JOG dial until the cursor (▶) is next to "DATA CLEAR SELECTION".

```

USER KEY
▶DATA CLEAR SELECTION
REAR TERMINAL
    
```

2. Turn the SHUTTLE ring to the right to show the <DATA CLEAR SELECTION> menu.

```

<DATA CLEAR SELECTION>
COPY DATA CLEAR OFF
ARCHIVE DATA CLEAR OFF
▶HDD DATA CLEAR OFF
    
```

☑ By turning JOG dial, to select the medium of the data clear.

3. Turn the JOG dial until the cursor is next to "HDD DATA CLEAR" and turn the SHUTTLE ring to the right. Turn the JOG dial until "ON" flashes.

• The message, "Turn the SHUTTLE ring >> to EXECUTE." appears on the screen.

```

<DATA CLEAR SELECTION>
COPY DATA CLEAR OFF
ARCHIVE DATA CLEAR OFF
▶HDD DATA CLEAR ON
    
```

☑ "COPY DATA CLEAR" or "ARCHIVE DATA CLEAR" appears on the screen when copy device or archive device is connected.

4. Turn the SHUTTLE ring to the right to clear the data.

• If not executing, turn the JOG dial until "OFF" flashes and turn the SHUTTLE ring to the right.

☑ Please note that you cannot exit from the menu when clearing the data and "ON" is flashing on the screen.

5. Turn the SHUTTLE ring to the left or press the SET UP button.

■ Rear Terminal Setting (MODE OUT setting)

With this setting, a signal can be output to send the status of this unit.

Example: Setting MODE OUT to "PLAY" (the default setting is "REC").

1. Display the <MENU SETTING> menu and turn the JOG dial until the cursor is next to "REAR TERMINAL".

```

USER KEY
DATA CLEAR SELECTION
▶REAR TERMINAL
SERVICE
    
```

2. Turn the SHUTTLE ring to the right to show the <REAR TERMINAL> menu.

```

<REAR TERMINAL>
▶MODE OUT REC
CAPACITY REMAIN HDD-10%
    
```

3. Check the cursor is next to "MODE OUT", then turn the SHUTTLE ring to the right.

• The sub-item will start flashing.

```

<REAR TERMINAL>
▶MODE OUT REC
CAPACITY REMAIN HDD-10%
    
```

4. Turn the JOG dial until "PLAY" flashes and turn the SHUTTLE ring to the right.

• The sub-item stops flashing.

```

<REAR TERMINAL>
▶MODE OUT PLAY
CAPACITY REMAIN HDD-10%
    
```

Other settings

By turning the JOG dial, the item of MODE OUT shown on the screen switches as shown below:

```

> REC ↔ PLAY ↔ POWER ↔ REMAIN <
    
```

"REC": The signal is output during recording.

"PLAY": The signal is output during playback.

"POWER": The signal is output when the unit's power switch is on.

"REMAIN": The signal is output when the remaining storage capacity of main HDD, archive device reaches the rate which is set in CAPACITY REMAIN.

5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Capacity remain setting

When MODE OUT is set to "REMAIN" and the remaining storage capacity of main HDD or archive device is running out, this unit gives warning. The following shows how to set the device and its remaining capacity ratio to give warning.

☑ When the remaining storage capacity decreases during recording:

- The display of the recorded storage capacity flashes when "DISPLAY MODE 3" is selected.
- The buzzer sounds when BUZZER in the <REAR TERMINAL> menu is set to "REMAIN".

Example: Setting CAPACITY REMAIN to "HDD-50%" (the default setting is "HDD-10%").

1. Display the <MENU SETTING> menu and turn the JOG dial until the cursor is next to "REAR TERMINAL".

```

USER KEY
DATA CLEAR SELECTION
▶REAR TERMINAL
SERVICE
    
```

2. Turn the SHUTTLE ring to the right to show the <REAR TERMINAL> menu.

3. Turn the JOG dial until the cursor is next to "CAPACITY REMAIN" and turn the SHUTTLE ring to flash the sub-item.

- The sub-item of the device will start flashing first. Choose the device you want to set by using the JOG dial and SHUTTLE ring. Then sub-item of the remain will start flashing.



4. Turn SHUTTLE ring and JOG dial to show "HDD-50%" and turn the SHUTTLE ring to the right to complete setting.

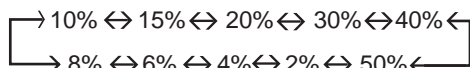
Other settings

By turning the JOG dial, the sub-item of CAPACITY REMAIN shown on the menu will be changed as follows:



Other settings

By turning the JOG dial, the sub-item of CAPACITY REMAIN shown on the menu will be changed as follows:



5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ **CALL OUT setting**

With this setting, the signal from CALL OUT terminal can be emitted externally to indicate the warning given from this unit. The signal is emitted from the CALL OUT terminal when the remaining storage capacity of main HDD reaches the preset amount. Likewise, the remaining storage capacity of archive medium can be set. The CALL OUT signal is also emitted when HDD FULL in the <INITIAL SET UP> menu is set to "STOP".

INFORMATION

For more on the relation between Warning Display and CALL OUT emission, please refer to page 75. When the emission parameter in CALL OUT is set to "Yes", the warning display will appear unconditionally; when the parameter is set to "Selectable", the unit can be made to emit a CALL OUT signal through additional settings. For example, when the BUZZER setting on the <REAR TERMINAL> menu is set to "KEY", the unit will sound a buzzer when the remaining amount on the hard disk has reached the figure specified on the <CALL OUT> menu.

Example: Setting CALL OUT of main HDD to "10%" (the default setting is "FULL") and CALL OUT of archive medium to "20%" (the default is "NONE").

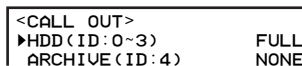
1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to REAR TERMINAL then turn the SHUTTLE ring to the right.

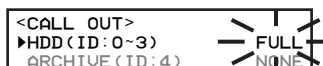
- The <REAR TERMINAL> menu will appear.



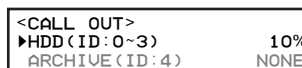
3. Turn the JOG dial until the cursor is next to "CALL OUT" and turn the SHUTTLE ring to the right to show the <CALL OUT> menu.



4. Confirm that the cursor is next to "HDD" and turn the SHUTTLE ring to the right to flash the sub-item.

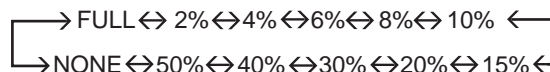


5. Turn the JOG dial to flash "10%" and turn the SHUTTLE ring to the right to complete setting.



Other settings

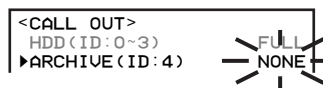
By turning the JOG dial, the item of CALL OUT shown on the screen switches as shown below:



"NONE": No signal is emitted from the CALL OUT terminal.

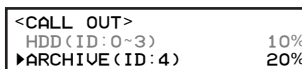
6. Turn the JOG dial until the cursor is next to "ARCHIVE" and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



7. Turn the JOG dial to flash "20%" and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.



8. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Buzzer setting

You can set to sound the buzzer when the remaining storage capacity of the Hard Disk Drive reaches the amount set in CAPACITY REMAIN setting on the <REAR TERMINAL> menu. In addition to the above setting of CALL OUT setting section, it is also possible to sound the buzzer when other errors occur.

To sound the buzzer when the remaining storage capacity reaches the preset amount.

- 1) Select "REMAIN" of BUZZER in the <REAR TERMINAL > menu.
- 2) Set the device and its remaining storage capacity of CAPACITY REMAIN in the <REAR TERMINAL> menu.

To sound the buzzer when the remaining storage capacity reaches the preset amount or other error occurs.

- 1) Select "WRNG" of BUZZER in the <REAR TERMINAL> menu.
- 2) Set the device and its remaining storage capacity of CAPACITY REMAIN in the <REAR TERMINAL> menu.

Example: Setting BUZZER to "REMAIN" (the default setting is "KEY").

1. Display the <MENU SETTING> menu and turn the JOG dial until the cursor is next to REAR TERMINAL. Then turn the SHUTTLE ring to the right.

- The <REAR TERMINAL> menu appears.

```
<REAR TERMINAL>
▶MODE OUT          REMAIN
CAPACITY REMAIN  HDD-10%
CALL OUT
```

2. Turn the JOG dial until the cursor is next to BUZZER and turn the SHUTTLE ring to the right to flash the sub-item.

```
CALL OUT
▶BUZZER           KEY
RS-232C SETTING
```

3. Turn the JOG dial to show "REMAIN" and turn the SHUTTLE ring to the right to complete setting.

- The sub-item stops flashing.

```
CALL OUT
▶BUZZER           REMAIN
RS-232C SETTING
```

☑ By turning the JOG dial, the item of BUZZER shown on the screen switches as shown below.

```
→ KEY ↔ WRNG ↔ REMAIN ↔ OFF ←
```

"KEY": The buzzer sounds when any button is pressed, or JOG dial or SHUTTLE ring is turned.

"WRNG": The buzzer sounds when a warning occurs. Refer to page 75, "Warnings and CALL OUT output", for details.

"REMAIN": The buzzer sounds when the remaining storage capacity of main HDD and ARCHIVE reaches the preset amount selected in CAPACITY REMAIN. Press WARNING RESET button to stop the buzzer.

"OFF": The buzzer does not sound.

4. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ RS-232C setting

This unit can be connected with a personal computer via the RS-232C terminal to operate from the remote place and it is possible to add information on the recorded data such as sound and date. Refer to page 57 for details.

☑ It is possible to record characters with images.

■ Service menu setting

In the <SERVICE> menu, you can see the power failure time, reset the Archive Pointer and initialize menus.

◆ Power Failure list

The list of time when the power failure occurred is available.

Example: Displaying POWER FAILURE list.

☑ Up to 50 power failure start times are shown on the list. If more than 50 times, the last 50 start times are shown.

1. Display the <MENU SETTING > menu and turn the JOG dial until the cursor is next to SERVICE. Turn the SHUTTLE ring to the right.

- The <SERVICE> menu appears.

```
<SERVICE>
▶POWER FAILURE
ARCHIVE POINT RESET OFF
MENU INITIALIZE      OFF
```

2. Check that the cursor is next to POWER FAILURE and turn the SHUTTLE ring to the right.

```
<POWER FAILURE>
No.  DATE   TIME  INFO.
02 23-01-99 12:02 PW-LOS
01 25-01-99 12:35 PW-LOS
```

- The <POWER FAILURE> list appears on the screen.
- The number of times, the date and the time when the power failure occurred are given on the list.

☑ To reset the power failure start time, press the WARNING RESET button when the <POWER FAILURE> list is shown on the screen.

3. Turn the SHUTTLE ring to the left or press the SET UP button.

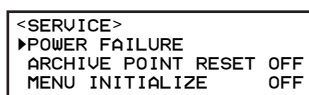
◆ Resetting the Archive Pointer

This unit writes down the Archive Pointer Glossary where the archive stops. In the next archive, it starts from the point where the Archive Pointer is placed. If you want to reset this Archive Pointer, follow the steps shown below.

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Move the cursor next to SERVICE then turn the SHUTTLE ring to the right.

- The <SERVICE> menu appears.



3. Turn the JOG dial until the cursor is next to ARCHIVE POINT RESET and turn the SHUTTLE ring to the right.

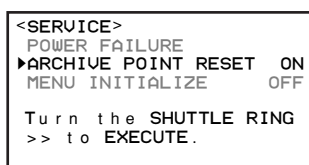
- The sub-item will start flashing.

4. Turn the JOG dial until "ON" flashes.



5. When the message, "Turn the SHUTTLE RING >> to EXECUTE." is shown on the screen, turn the SHUTTLE ring to the right.

- The Archive Pointer is now reset.
- If not executing, turn the JOG dial until "OFF" is shown.



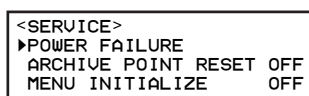
6. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Initializing menus

Selecting "ON" of MENU INITIALIZE in the <SERVICE> menu initializes the setting, except for the built-in HDD and the peripheral recording device.

Example: Setting MENU INITIALIZE to "ON" (the default is "OFF").

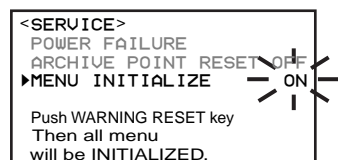
1. Press the SET UP button to display the <MENU SETTING> menu.
2. Move the cursor next to SERVICE then turn the SHUTTLE ring to the right.
 - The <SERVICE> menu appears.



3. Turn the JOG dial until the cursor is next to MENU INITIALIZE and turn the SHUTTLE ring to the left to show "ON".



4. When "Push WARNING RESET key Then all menu will be INITIALIZED." appears on the screen, press the WARNING RESET button.



- If not executing, change the sub-item to "OFF" and turn the SHUTTLE ring to the right.

5. SPLIT 9 screen will be shown on the monitor and all menus are initialized.

09-06-2000 12:12:05		
1	2	3
4	5	6
7	8	9

- Please note that time date display, timer programme setting, the title of all cameras set in CAMERA SETTING of the <MPX FUNCTIONS> menu are not initialized.
- The SELECTED PATTERN setting will be initialized to P1 of TIMER PROGRAM on the <MENU SETTING> menu. Please refer to the Menu displays on page 22.

■ Initial set up

In the <INITIAL SET UP> menu, it is possible to set several items such as the present day and time, a motion of this unit when the storage capacity of HDD runs out and during playback.

◆ Clock setting

Refer to page 11, "Setting the present time" for details.

◆ Archive medium overwrite setting

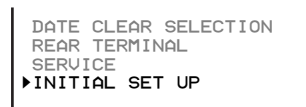
Setting whether to overwrite on archive medium when making a new archive can be selected on the menu.

Example: Setting ARCHIVE OVERWRITE to "ON" (the default setting is "OFF").

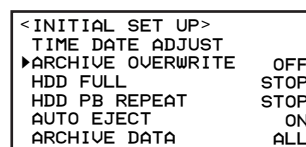
- When ARCHIVE OVERWRITE is set to "ON", all data on the archive medium will be erased along with the archive. Make sure to confirm the content in the archive medium before starting to make the backup.

1. Display the <MENU SETTING> menu on the screen. Turn the JOG dial until the cursor is next to "INITIAL SET UP" and turn SHUTTLE ring to the right.

- The <INITIAL SET UP> menu is shown on the screen.

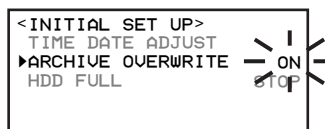


2. Move the cursor to ARCHIVE OVERWRITE and turn the SHUTTLE ring to the right until the sub-item flashes.



3. Turn the JOG dial until "ON" flashes and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.



Various settings (continued)

The Archive Pointer **Glossary** is recorded when backup is either temporarily stopped or finished. Using this, the unit will begin the next backup at the end point of the previous backup.

4. Turn the SHUTTLE ring to the left or press the SET UP button.

```
<INITIAL SET UP>
TIME DATE ADJUST
▶ARCHIVE OVERWRITE      ON
HDD FULL                STOP
```

◆ HDD repeat recording

This function is used to set the motion of this unit when the storage capacity of HDD is running out.

Example: Setting HDD FULL to “REC•STANDBY” (the default setting is “STOP”).

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor next to INITIAL SET UP and turn the SHUTTLE ring to the right.

- The <INITIAL SET UP> menu will appear.

```
<INITIAL SET UP>
▶TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
HDD FULL                STOP
HDD PB REPEAT          STOP
AUTO EJECT              ON
```

3. Turn the JOG dial until the cursor is next to HDD FULL and turn the SHUTTLE ring to the right.

- The sub-item flashes.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
▶HDD FULL                STOP
```

4. Turn the JOG dial to show “REC•STANDBY” and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
▶HDD FULL                REC•STANDBY
```

Other settings

By turning the JOG dial, the sub-item of HDD FULL will be changed as follows:

“STOP”: When the disk reaches its end during recording, the recording stops and “HDD FULL” is shown on the screen. To start recording again, press the WARNING RESET button to clear the warning message and press the REC button.

“REC•STANDBY”: If the storage capacity of HDD runs out, the recording stops and the unit stays on the stand-by mode (power on). Then, once REC terminal is grounded, it starts recording again.

“REPEAT”: When the disk reaches its end during recording, the recording starts again from the beginning of the disk.

“ALARM•PROT”: If there is an alarm recording to finish setting, the action of this unit is the same as when set to “STOP”. If there is no alarm recording during recording, this unit starts recording again from the beginning of the disk.



5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ HDD repeat playback

It is a function which repeats playback of the recording on main HDD.

Example: Setting HDD PB REPEAT to “REPEAT” (the default is “STOP”).

1. Display the <MENU SETTING> menu on the screen and turn the JOG dial until the cursor is next to INITIAL SET UP and turn the SHUTTLE ring to the right.

- The <INITIAL SET UP> menu appears.

```
<INITIAL SET UP>
▶TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
HDD FULL                STOP
HDD PB REPEAT          STOP
AUTO EJECT              ON
ARCHIVE DATA          ALL
```

2. Turn the JOG dial until the cursor is next to HDD PB REPEAT and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
HDD FULL                STOP
▶HDD PB REPEAT          STOP
AUTO EJECT              ON
ARCHIVE DATA          ALL
```

3. Turn the JOG dial until “REPEAT” flashes and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
HDD FULL                STOP
▶HDD PB REPEAT          REPEAT
AUTO EJECT              ON
ARCHIVE DATA          ALL
```

Another setting of HDD PB REPEAT:

“STOP”: The unit stops playback at the end of HDD.

4. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Auto-eject setting

This setting is for ejecting the medium of archive device automatically. If you set to “ON” and make the back up timer program, the archive medium is ejected automatically at the end of the programmed time. If you set to “OFF”, the archive medium will not be ejected.

Example: Setting AUTO EJECT to “OFF” (the default is “ON”).

1. Display the <INITIAL SET UP> menu as written on the left.

```
<INITIAL SET UP>
▶TIME DATE ADJUST
ARCHIVE OVERWRITE      OFF
HDD FULL                STOP
HDD PB REPEAT          STOP
AUTO EJECT              ON
ARCHIVE DATA          ALL
```

2. Turn the JOG dial until the cursor is next to AUTO EJECT and turn the SHUTTLE ring to the right.

- When the sub-item is flashing, turn the JOG dial until "OFF" starts flashing.



3. Check "OFF" is flashing and turn the SHUTTLE ring to the right.



4. Turn the SHUTTLE ring to the left or press the SET UP button.

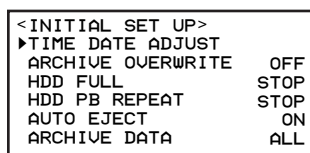
- ☑ Archive medium is also ejected when the archive in progress is cancelled. Refer to page 54, "Auto-eject at the completion of backup" for details.

◆ ARCHIVE DATA setting

When backing up records onto backup media, it is possible to select and back up only the "ALARM" part of the records by setting ARCHIVE DATA to "ALARM".

Example: Setting backup operation selection to "ALARM" (the default is "ALL").

1. Press the SET UP button to display the <MENU SETTING> menu.
2. Move the cursor to INITIAL SET UP and turn the SHUTTLE ring to the right.
 - The <INITIAL SET UP> menu will be displayed.



3. Turn the JOG dial move the cursor to ARCHIVE DATA. Turn the SHUTTLE ring to the right.
 - Turn the JOG dial to make the selection options flash.



4. Turn the JOG dial to make the "ALARM" option flash. Turn the SHUTTLE ring to the right.
 - The operation that has been or press the SET UP button.



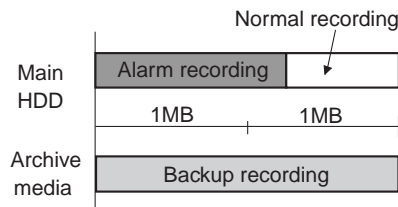
5. Turn the SHUTTLE ring to the left or press the SET UP button.

Other settings By turning JOG dial, the sub-item of ARCHIVE DATA shown on the menu will be changed as follows:

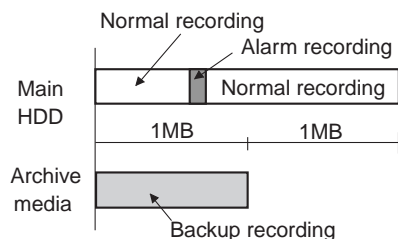
"ALL": This back up all the data recorded on the main HDD after the ARCHIVE POINTER. Alternatively, all data will be backed up.

"ALARM": Of all the data blocks recorded on the main HDD(1 MB units), this will back up only the data blocks that contain the alarm record. Some data either side of the alarm record may be included when backing up a small alarm record.

- 1). Backing up a data block containing the alarm record.



- 2). Backing up a small alarm record.



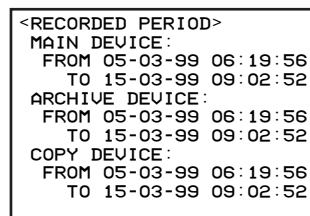
■ The <INFORMATION> menu

This unit has functions which allow you to check information such as the recorded period and SCSI ID number of the main HDD and peripheral devices.

◆ Showing the recorded period

The recorded period of the main HDD, the archive device and the copy device is shown on the screen.

1. Press the INFO button.
 - The <INFORMATION> menu appears.
2. Check that the cursor is next to RECORDED PERIOD and turn the SHUTTLE ring to the right.
3. The message, "GET S/E information. Turn the SHUTTLE ring >> to EXECUTE." is shown on the screen and then turn the SHUTTLE ring to the right.
 - The <RECORDED PERIOD> menu is shown.



4. Turn the SHUTTLE ring to the left or press the INFO button.

Various settings (continued)

◆ Connected SCSI device

The SCSI ID number of connected devices can be confirmed on the screen.

1. Press the **INFO** button.

- The **<INFORMATION>** menu appears.

2. Turn the **JOG** dial until the cursor is next to "CONNECTED SCSI DEVICE" and turn the **SHUTTLE** ring to the right.

- SCSI ID numbers are shown on the screen.

```
<CONNECTED SCSI DEVICE>
SCSI ID0:HDD (30GB)
      ID1:HDD ( 9GB)
      ID2:NONE
      ID3:NONE
      ID4:DDS
      ID5:NONE

LIMIT OFF
```

3. Turn the **SHUTTLE** ring to the left or press the **INFO** button.

■ Elapsed time display

The elapsed time of main HDD, archive device and copy device are shown on the screen. ELAPSED TIME for ARCHIVE or COPY will not be displayed unless an ARCHIVE device or COPY device has been connected to the unit.

- ☑ The elapsed time of main HDD is counted while the unit's power is turned on.

The elapsed time of the peripheral device (ID4) is counted as shown below:

1) While the **ARCHIVE** button illuminates or flashes.

```
<ELAPSED TIME>
MAIN           1500H
ARCHIVE        200H
COPY           120H
```

2) While the **PLAY** or **REV PLAY** button illuminates or flashes when the archive device is selected as a playback device using the **PLAY DEVICE** button. Refer to page 14, "Basic playback" for details.

3) While the **ARCHIVE** indicator illuminates or flashes when restoring the data from main HDD to archive device.

- ☑ The elapsed time of the peripheral device (ID5) is counted as shown below.

1) While the **PLAY** or **REV PLAY** button illuminates or flashes when the copy device is selected as a playback device using the **PLAY DEVICE** button. Refer to page 14, "Basic playback" for details.

2) While the **COPY** indicator illuminates or flashes when copying the data from main HDD to the copy device.

3) While the **COPY** indicator illuminates or flashes when restoring the data from main HDD to the copy device.

1. Press the **INFO** button.

- The elapsed time is shown on the lower part of the screen.

2. After confirming the elapsed time, turn the **SHUTTLE** ring to the left.

- To exit the menu, press the **INFO** button again.
- The elapsed time of archive device or copy device will not be reset even though those devices are disconnected.

- The elapsed time of archive device includes the time when the **ARCHIVE** button is pressed (when pressed, the **ARCHIVE** button illuminates) even in the case where there is no data on the main HDD such as an alarm stand-by mode.

- The elapsed time shown on this menu may not be consistent with the regulation guaranteed period of the stock of wearing parts subject to wear or the guaranteed life span.

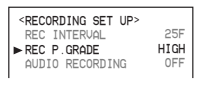
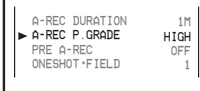
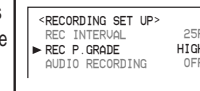
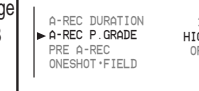
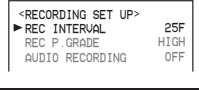
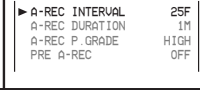

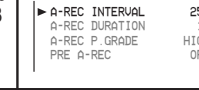
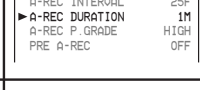
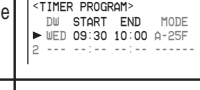
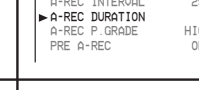
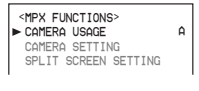
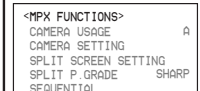
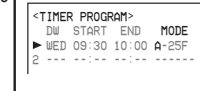
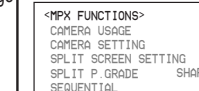
INFORMATION

The elapsed time is shown up to 999999 hours at the maximum.

Various recording settings

■ Various recording settings

This Unit has many settings for various recordings. You have to make settings on different pages for normal recording and timer recording. Please refer to the table below for details. If the channel which is to be operated on <CAMERA SETTING> is not set, the warning will appear.

Recording Setting	Recording by setting manually				Timer recording			
	Normal recording	Page	Alarm recording	Page	Normal recording	Page	Alarm recording	Page
Recording picture grade	REC P.GRADE in <RECORDING SET UP> 	page 13	A-REC P.GRADE in <RECORDING SET UP> 	This page	REC P.GRADE in <RECORDING SET UP> 	page 13	A-REC P.GRADE in <RECORDING SET UP> 	This page
Recording interval	REC INTERVAL in <RECORDING SET UP> 	page 13	A-REC INTERVAL in <RECORDING SET UP> 	This page	MODE setting in <TIMER PROGRAM> 	page 43	A-REC INTERVAL in <RECORDING SET UP> 	This page
Recording duration	---	---	A-REC DURATION in <RECORDING SET UP> 	This page	START and END time in <TIMER PROGRAM> 	page 43	A-REC DURATION in <RECORDING SET UP> 	This page
Recording camera channel (CH)	Selected CAMERA USAGE pattern on <MPX FUNCTIONS> 	page 38	Selected ALARM REC CH. setting on <MPX FUNCTIONS> 	page 39	Selected CAMERA USAGE pattern on MODE setting of <TIMER PROGRAM> 	page 43	Selected ALARM REC CH. setting on <MPX FUNCTIONS> 	page 39

◆ Recording Interval Setting

For details please refer to “Setting the recording interval” on page 13.

◆ Audio Recording

For details please refer to “Using the audio recording” on page 14.

◆ Estimated recording time <ESTD TIME>

For details please refer to “Changing the recording picture grade” on page 13.

◆ Recording picture grade setting

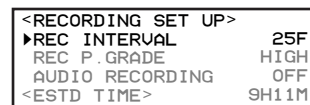
For details please refer to “Changing the recording picture grade” on page 13.

◆ Alarm recording interval, Alarm recording duration and Alarm recording picture grade setting

When the ALARM IN terminal is triggered by an alarm sensor, the unit will switch to its preset recording intervals, and can record at both the regular recording intervals and another recording interval. In addition, settings can be made for the recording intervals and image quality used when the ALARM IN terminal is triggered.

Example: Setting the A-REC INTERVAL to “12.5F” (the default setting is “25F”). Set the A-REC DURATION to “15S” (the default setting is “1M”). Set the A-REC P.GRADE to “STANDARD” (the default setting is “HIGH”).

1. Display the <MENU SETTING> menu. Turn the JOG dial to RECORDING SET UP then turn the SHUTTLE ring to the right.
 - The <RECORDING SET UP> menu will appear.



2. Turn the JOG dial to move the cursor to A-REC INTERVAL and turn the SHUTTLE ring to the right.
 - The sub-item will start flashing.



3. Turn the JOG dial to flash “12.5F” and turn the SHUTTLE ring to the right.
 - The sub-item stops flashing. Check that the A-REC INTERVAL is defined correctly.



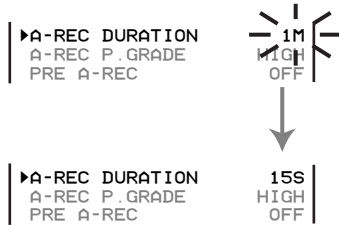
Various recording settings (continued)

4. Turn the JOG dial to move the cursor to A-REC DURATION and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.

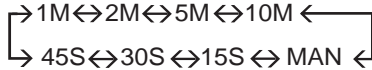
5. Turn the JOG dial to display "15S" and turn the SHUTTLE ring to the right to define the setting.

- The sub-item will stop flashing. Check that the A-REC DURATION is entered correctly.



Other settings

By turning the JOG dial, the sub-item of the A-REC DURATION shown on the menu will be changed as follows:



6. Turn the JOG dial to move the cursor to A-REC P.GRADE and turn the SHUTTLE ring to the right.



☑ The recording interval settings for normal recording have to be set on the same menu. For details of settings for recordings, please refer to page 33.

7. Turn the JOG dial to flash "STANDARD" and turn the SHUTTLE ring to the right to enter the setting.

- The sub-item will stop flashing. Check that the A-REC P.GRADE is entered correctly.



Other settings

By turning the JOG dial, the sub-item of the A-REC P.GRADE shown on the menu will be changed as follows:



8. Turn the SHUTTLE ring to the left or press the SET UP button.



Please refer to "Setting of Alarm recording camera" on page 39 for details of the cameras to be activated when alarm recording is activated.

INFORMATION

Please refer to "Alarm Recording operation" on page 45 for details of the alarm recording.

◆ Pre-alarm recording setting

During alarm recording, it is possible to record the picture several seconds before the signal is input in to the ALARM IN terminal.

- ☑ The USER KEY can be used to set the pre-alarm recording on/off. Refer to page 25 for details.

Example: Set the PRE A-REC to "LONG" (the default setting is "OFF").

1. Make settings for A-REC P.GRADE, A-REC INTERVAL and A-REC DURATION as shown on page 33 and this page.



2. Turn the JOG dial to move the cursor to PRE A-REC and turn the SHUTTLE ring to the right to flash the sub-item.

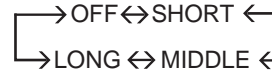


3. Turn the JOG dial to flash LONG, and turn the SHUTTLE ring to the right. **The unit will be in stand-by mode for the Pre-alarm recording.**

- PRE ALARM REC indicator on the front of the unit will start illuminating.



- ☑ By turning the JOG dial, the sub-item of PRE A-REC will be changed as follows:



4. Ground the ALARM IN terminal.

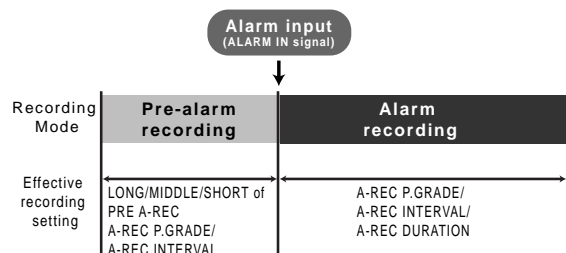
- The unit will start alarm recording.

☑ The duration of recording before the ALARM IN terminal is triggered depends on the A-REC INTERVAL, A-REC P.GRADE, and PRE A-REC settings. Please refer to "Pre-alarm Recording" on page 46 for details.

INFORMATION

To activate pre-alarm recording on Timer programmes, please refer to "Pre-alarm Recording" on page 46.

Following the end of Pre-alarm recording, the regular value of the Alarm Recording settings returns to the value set in the A-REC P.GRADE, A-REC INTERVAL, and A-REC DURATION settings.



◆ Shot recording field

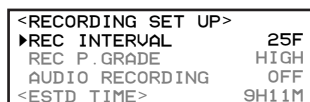
The following explains the setting for ONESHOT•FIELD when REC INTERVAL is set to "SHOT"(refer to page 13). When ONESHOT•FIELD is set to "1", the unit performs a shot recording of all the cameras set in the CAMERA SETTING parameter on the MPX FUNCTIONS screen.

Example: ONESHOT•FIELD is set to "10". (The default setting is "1".)

This example covers instances where 9 cameras have been set in the CAMERA SETTING parameter. In this case, 90 shots (9 cameras x 10 shots) are input.

1. Show the <MENU SETTING> menu on the screen and turn the JOG dial until the cursor is next to RECORDING SET UP and turn the SHUTTLE ring to the right.

- The <RECORDING SET UP> menu will appear.



2. Turn the JOG dial until the cursor is next to ONESHOT•FIELD and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



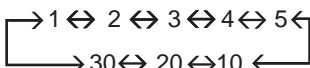
3. Turn the JOG dial until "10" flashes and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.



Other settings

By turning the JOG dial, the sub-item of ONESHOT•FIELD shown on the screen switches as shown below:



4. Turn the SHUTTLE ring to the left or press the SET UP button.

5. Press the REC button or ground the REC terminal on the rear of this unit.

- The shot recording will start.

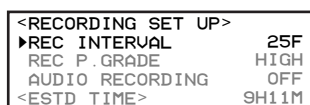
◆ Shot recording interval

When REC INTERVAL (refer to page 13) is set to "SHOT", the shot recording interval should be set as follows.

Example: Setting ONESHOT•INTERVAL to "15S" (the default is "SHOT").

1. Repeat STEP 1 as stated above.

- The <RECORDING SET UP> menu appears.



2. Turn the JOG dial until the cursor is next to ONESHOT•INTERVAL and turn the SHUTTLE ring to the right.

- The sub-item flashes.



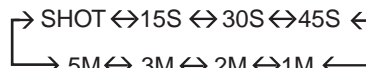
3. Turn the JOG dial until "15S" flashes and turn the SHUTTLE ring to the right.

- The sub-item stops flashing.



Other settings

By turning the JOG dial, the sub-item of ONESHOT•INTERVAL will be changed as follows:



4. Turn the SHUTTLE ring to the left or press the SET UP button.

5. Press the REC button or ground the REC terminal on the rear of this unit.

- The shot recording will start.

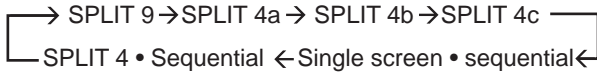
Multiplexer functions

■ Multiplexer functions

Please refer to "Multiplexer functions" on Basic Operation page 12 for details about the functions.

■ Multiplexer buttons

The use of SPLIT/SEQUENTIAL button
By pressing the SPLIT/SEQUENTIAL button, you can switch the display mode as follows:



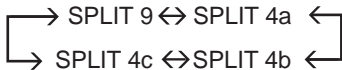
☑ The refresh cycle of camera images becomes longer as the number of cameras increases. Smoother images can be viewed when cameras which are not needed are removed from the cameras designated in the CAMERA SETTING parameter on the <MPX FUNCTIONS> menu.

☑ Images are displayed in real time during single screen display.

☑ For details of the Camera number buttons and SPLIT/SEQUENTIAL button, please refer to "The functions of the SPLIT/SEQUENTIAL button, ZOOM button and camera number buttons" on next page.

INFORMATION You can arrange the layout of all SPLIT DISPLAY settings on SPLIT SCREEN SETTING in the <MPX FUNCTIONS> menu. For details please refer to pages 39, "Split screen settings".

Other settings It is also possible settings of SPLIT DISPLAY during playback by pressing the SPLIT/SEQUENTIAL button:



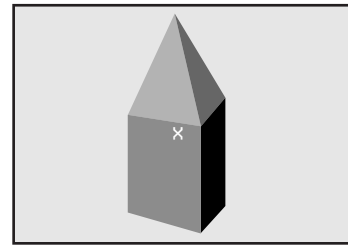
⚠ When Non-operation camera was set in SPLIT 4 setting on the <SPLIT SCREEN SETTING> menu, "-" appears where the camera number is supposed to be displayed.

09-06-2000	12:12:05
1	3
-	9

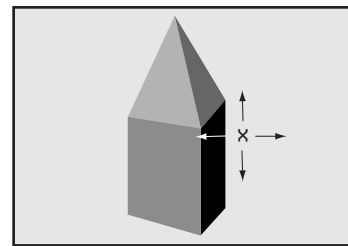
☑ You can view any picture in actual screen size by pressing the camera number button during SPLIT/SEQUENCE button is used. You can go back to the previous SPLIT DISPLAY by pressing the SPLIT/SEQUENCE button again.

◆ How to use the ZOOM button

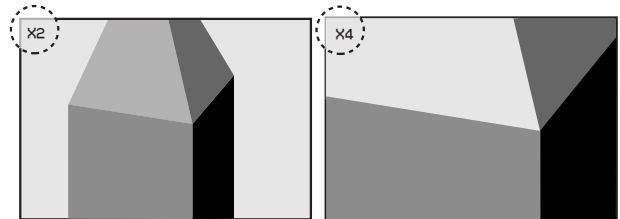
1. Display the ZOOM POINTER (X) by pressing the ZOOM button.



2. Move the pointer to the desired position by pressing the camera number buttons 6 to 9.



3. Pressing the number 4 button (ZOOM IN) will enlarge the picture twice (X2) and four times (X4) as large as the actual display size.



☑ Pressing the camera number 5 button (ZOOM OUT button) will change the size of the display picture to actual display size. During enlarged display viewing, cannot display the menu.

☑ The ZOOM POINTER'S position does not change when the display screen changes or when power is turned off. This is convenient for situations where the desired viewing areas, such as the counter or cash register, are determined in advance. In addition, the ZOOM POINTER can be used during playback of recorded images.

☑ When playing back images from multiple cameras on single screen, if the enlarging control is used during the pause mode there is a possibility that a black screen will be displayed. In this case, the desired enlarged image can be obtained by moving through frames using the JOG dial.

INFORMATION • As the enlarge display function involves electronic enlargement, details of the image will appear pixelized when enlarged.

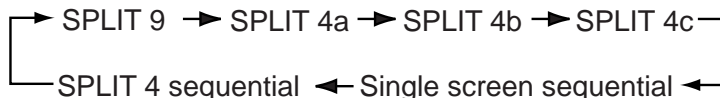
• Enlarged display is cancelled if the ALARM IN terminal is triggered during enlarged display viewing.

◆ **How to use the camera number buttons**

By pressing each camera number button, you can view the camera's picture which is connected to the CAMERA INPUT on the rear of this unit. If the picture of the camera which is not set to operate on CAMERA SETTING of the <MPX FUNCTIONS> menu, the Not-operated camera mark (🚫) will appear next to the time display. You can also view the picture of the camera when watching SPLIT or SEQUENCE screen by pressing the camera number button.

■ **SPLIT/SEQUENCE button**

By pressing the SPLIT/SEQUENCE button, the SPLIT picture modes will be switched as follows:



■ **The functions of the SPLIT/SEQUENCE button, ZOOM button and camera number buttons**

The present time display is changed to be DISPLAY MODE 1, when in SPLIT or SEQUENCE screen mode. You cannot arrange the place of the present time display. If the camera picture without the picture input signal is displayed, the screen will be shown as a blue screen. When in SPLIT or SEQUENCE screen mode, Not-operated camera's picture will be shown as a black screen.

Display	SPLIT/SEQUENTIAL	ZOOM button	Flashing/illuminating Of Camera number buttons	Page
SPLIT 9 	SPLIT/SEQUENCE OFF	ZOOM OFF	The pictures of operated camera will be displayed in SPLIT 9 mode. The pictures of cameras will be shown in order. Set the order on CAMERA SETTING of the <MPX FUNCTIONS> menu.	39
SPLIT 4 MODE a (4a) SPLIT 4 MODE b (4b) SPLIT 4 MODE c (4c) 	SPLIT/SEQUENCE OFF	ZOOM OFF	The camera number which is selected for SPLIT 4a, b or c and also the numbers which are selected to record on CAMERA SETTING will be illuminating.	40
Single screen Sequential 	SPLIT/SEQUENCE Illuminating	ZOOM OFF	Display the picture of the camera for the time which is set on SEQUENTIAL of the <MPX FUNCTIONS> menu. Camera number button which has now displayed is illuminating.	40
SPLIT 4 Sequential 	SPLIT/SEQUENCE Illuminating	ZOOM OFF	SPLIT 4 display (abc or ab) which is set on SEQUENTIAL of the <MPX FUNCTIONS> menu will be displayed for set up time. Camera number button which is set to be operated on CAMERA SETTING of the <MPX FUNCTIONS> menu will only illuminates. If Non-operated camera's picture is displayed, camera number will be changed as " - ".	40
Single screen	Not enlarged OFF	ZOOM OFF	Camera number button which has now displayed is illuminating.	36
	Enlarged OFF	ZOOM Illuminating	Camera buttons which has been enlarged as DISPLAY-1, X2 or X4 will be illuminated.	36
During Alarm recording and Pre-alarm recording *If the Alarm signal is input during SPLIT/SEQUENTIAL mode.	/	/	Regardless of SPLIT 9, SPLIT 4 or DISPLAY-1 mode, camera number buttons which are now making Alarm recording and Pre-alarm recording flash.	46

■ Multiplexer settings

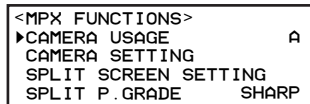
There are 3 types of camera settings: A, B and C. You can set the cameras to be operated at each setting. It is useful to make titles with the setting on the same menu.

Example: Set Camera CH (channel) ⑤ as an operated channel on CAMERA USAGE B. The title will be "EXIT" (the default setting is to operate camera CH ① to ④).

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Move the cursor (▶) to MPX FUNCTIONS then turn the SHUTTLE ring to the right.

• The <MPX FUNCTIONS> menu will appear.



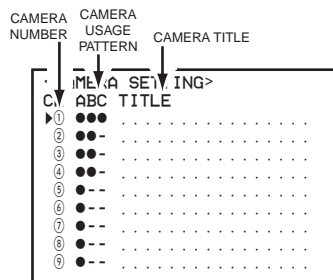
3. Turn the JOG dial to move the cursor to CAMERA SETTING and turn the SHUTTLE ring to the right.

• The <CAMERA SETTING> menu will appear. The "●" will appear next to the CH number of the camera if it is set to be operated. The default setting is to operate CAMERA CH ① to ② for CAMERA USAGE A, ① to ④ for CAMERA USAGE B and ① for CAMERA USAGE C.

! Precautions related to settings

With CAMERA SETTING, at least one camera channel must be activated for each camera operation A, B and C. (Active channels are indicated by "●".) Please note that the settings menu cannot be exited until this is done.

! Set all cameras to be activated for Alarm recording to be operated on the <CAMERA SETTING> menu.

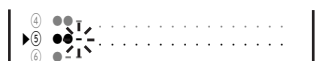


4. Turn the JOG dial to the right to move the cursor next to CH ⑤ and turn the SHUTTLE ring to the right until "- -" flashes.



5. Turn the JOG dial to display "●" and turn the SHUTTLE ring to the right.

• The flashing will move to the next line.



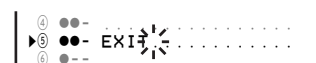
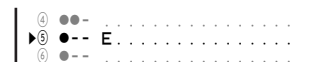
INFORMATION Complex operation settings are possible when settings for CAMERA SETTING B and CAMERA SETTING C are made at the same

time. For example, by pre-programming the operation, the unit can be made to switch and execute an operation to match the situation through the CAMERA USAGE setting in the <MPX FUNCTIONS> menu. In addition, an easy-to-understand surveillance system can be constructed by adding titles to the camera settings.

6. Turn the SHUTTLE ring to the right to flash the first column of the TITLE setting.



7. Turn the JOG dial to display "E" and turn the SHUTTLE ring to the right to move the flashing to next column.



8. Repeat Steps 6 and 7 to input "EXIT".

- Turning the SHUTTLE ring to the left while inputting will erase the character. To exit the TITLE column, move the flashing to the right end, then turn the SHUTTLE ring to the right to fix title setting.
- To continue title setting, turn the JOG dial to move the cursor to desired camera CH.



9. To finish setting, turn the SHUTTLE ring to the left or press the SET UP button.

• You cannot exit the menu till you fix title setting (if one of the columns of the TITLE is flashing). To fix the setting please refer to step 8 above.

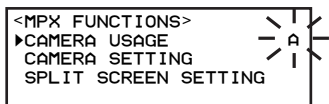
INFORMATION A warning appears when the unit records while there is no input signal in the designated camera channel. (Please refer to "Warnings and CALL OUT output" on page 75 for more details.) In addition, please select "invalid" in the <CAMERA SETTING> menu for those cameras with no input. If the unit is operated without this "invalid" setting, there are rare occasions during split-screen viewing when image from another screen appear in a channel without an input signal.

◆ Camera usage setting

This setting is to choose the camera setting on the <CAMERA SETTING> menu. You can make good use of this unit by making timer recordings using the Camera usage setting. For details of the combination of Multiplexer functions and Timer recording, please refer to pages 41 and 42 for operation examples.

Example: Choose CAMERA USAGE B (the default setting is "A").

1. Display the < MENU SETTING> menu by pressing the SET UP button.
2. Turn the JOG dial to move the cursor to MPX FUNCTIONS and turn the SHUTTLE ring to the right.
 - The <MPX FUNCTIONS> menu will appear.
3. Check that the cursor is next to CAMERA USAGE then turn the SHUTTLE ring to the right.
 - The sub-item will start flashing.



4. Turn the JOG dial to flash "B" and turn the SHUTTLE ring to the right to fix setting.
 - The sub-item will stop flashing.



5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Setting of Alarm recording camera

This is the setting for the camera to start shooting when ALARM IN terminal is grounded (alarm recording signal is input). This setting is only effective during alarm recording. After alarm recording, operations return to their prior settings.

Example: Setting the ALARM REC CH. to "ALL" (the default setting is "SEP").

1. Press the SET UP button to display the <MENU SETTING> menu.
2. Turn the JOG dial to move the cursor to MPX FUNCTIONS then turn the SHUTTLE ring to the right.
 - The <MPX FUNCTIONS> menu will appear.
3. Turn the JOG dial to move the cursor to ALARM REC CH. then turn the SHUTTLE ring to the right to fix setting.
 - The sub-item will start flashing.
4. Turn the JOG dial to display "ALL", and turn the SHUTTLE ring to the right to fix setting.
 - The sub-item will stop flashing.



Other settings

By turning the JOG dial, the sub-item of ALARM REC CH. will be changed as follows:



"SEP": The alarm recording will start only with the camera which received the alarm signal. If several cameras received alarm input at once, all of those cameras will start alarm recording.

"ALL": The alarm recording will start with all cameras set to be operated on the <CAMERA SETTING> menu when ALARM IN terminal is grounded.

5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Displaying the title

You chose whether to display the channel title (TITLE on the <CAMERA SETTING > menu) or CH number on screen.

Example: Display TITLE on screen (the default setting is "CH.NO").

1. Press the SET UP button to display the <MENU SETTING> menu.
2. Turn the JOG dial to move the cursor to MPX FUNCTIONS then turn the SHUTTLE ring to the right.
 - The <MPX FUNCTIONS> menu will appear.
3. Turn the JOG dial to move the cursor to CH.TITLE then turn the SHUTTLE ring to the right.
 - The sub-item will start flashing.



4. Check that the "CH.NO" is flashing. Turn the SHUTTLE ring to the right to finish setting.



Other settings

By turning the JOG dial, the sub-item of CH. TITLE will be changed as follows:



5. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Split screen settings

By using the Multiplexer functions of this unit, you can view camera pictures in SPLIT 4 and SPLIT 9 on your monitor. You can also arrange the order of camera pictures as you want.

◆ SPLIT 9 setting

Example: Displaying desired camera pictures with desired layout in SPLIT 9.

1. Press the SET UP button to display the <MENU SETTING> menu.
2. Turn the JOG dial to move the cursor to MPX FUNCTIONS and turn the SHUTTLE ring to the right.
 - The <MPX FUNCTIONS> menu will appear.
3. Turn the JOG dial to move the cursor to SPLIT SCREEN SETTING then turn the SHUTTLE ring to the right.
 - The <SPLIT SCREEN SETTING> menu will appear.

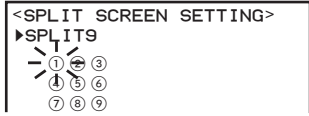


4. Make sure that the cursor is next to "SPLIT 9". Turn the SHUTTLE ring to the right.

Multiplexer functions (continued)

5. Check that the top left number (default setting is set to ①) is flashing. Turn the JOG dial to display the desired camera number then turn the SHUTTLE ring to the right to fix setting.

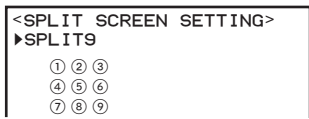
- The flashing will move to the next camera number.



6. Set all camera numbers according to the steps written on the previous page.

7. Check that all camera numbers are set. Turn the SHUTTLE ring to the right to fix setting.

- The flashing will stop.
- Settings cannot be made when the same camera number is in SPLIT 9 setting mode. When the same camera has been selected, the blinking light will return to its original state even if all the camera numbers have been input. Check to see if the same camera number has been entered; if the same number has been entered, please change the settings.



8. Press the SET UP button.

- The <SPLIT SCREEN SETTING> menu will disappear.

! You cannot exit the menu if you set same camera numbers at different positions. In this case, please change settings.

◆ SPLIT 4 setting

SPLIT 4 setting mode, you can choose between a to c of SPLIT 4 display mode. Before you choose the setting, arrange the camera position as you like in this section.

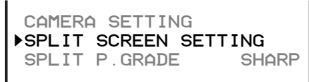
1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to MPX FUNCTIONS and turn the SHUTTLE ring to the right.

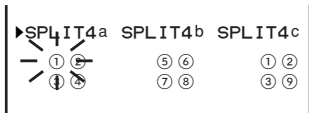
- The <MPX FUNCTIONS> menu will appear.

3. Turn the JOG dial to move the cursor to SPLIT SCREEN SETTING then turn the SHUTTLE ring to the right.

- The <SPLIT SCREEN SETTING> menu will appear.



4. Make sure that the cursor is next to "SPLIT4a". Turn the SHUTTLE ring to the right.



5. Repeat steps 5 to 7 of SPLIT 9 setting on this page to set the rest of the position.

- You cannot set the same number in SPLIT 4 setting. If the flashing goes back to the original position, you have to change settings to make sure the same camera numbers are not set at different positions.

6. Press the SET UP button.

- The <SPLIT SCREEN SETTING> menu will disappear.

◆ SEQUENTIAL setting

The sequential setting is designed to automatically switch the on-screen image in the order in which the connected cameras are displayed. The switching time can be set as well. It is also possible to automatically switch between the three display patterns available in SPLIT 4 of the SPLIT SCREEN SETTING. The same camera can also be registered repeatedly.

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to MPX FUNCTIONS then turn the SHUTTLE ring to the right.

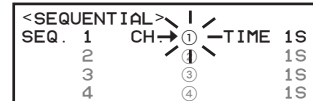
- The <MPX FUNCTIONS> menu will appear.

3. Move the cursor to SEQUENTIAL then turn the SHUTTLE ring to the right.

- The <SEQUENTIAL> menu will appear.

4. Turn the JOG dial to select the desired camera number, then turn the SHUTTLE ring to the right.

- The channel number will start flashing.



5. Turn the JOG dial till desired channel number appears and turn the SHUTTLE ring to the right to enter the selection.

- The flashing will move to "TIME".



6. Turn the JOG dial to display desired length of time then turn the SHUTTLE ring to the right to fix setting.

- Maximum of 30 seconds can be set.



7. Repeat steps 4,5 and 6 above to fix settings for other cameras.

8. (If you wish to display SPLIT 4 between a to c) Turn the JOG dial to move the cursor to SPLIT 4 and turn the SHUTTLE ring to the right to choose pattern from abc or ab.

- The selected pattern will start flashing.



☑ SPLIT 4 pictures to be displayed and changed automatically are pictures set on SPLIT SCREEN SETTING on the <MPX FUNCTIONS> menu. Please refer to SPLIT 4 setting on page the left.

☑ Vertical resolution decreases when split screen image quality(SPLIT P.GRADE) is set to "SOFT".

◆ Picture grade of sequential display

It is possible to set the image quality for split-screen display mode. Fine details are visible when image quality is set to "SHARP", and screen flicker is reduced when set to "SOFT".

Example: Setting the sequential picture quality to "SOFT" (the default setting is "SHARP").

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to MPX FUNCTIONS then turn the SHUTTLE ring to the right.

- The <MPX FUNCTIONS> will appear.

3. Turn the JOG dial to move the cursor to SPLIT P.GARDE then turn the SHUTTLE ring to the right to flash the sub-item.



4. Turn the JOG dial to choose "SOFT" and turn the SHUTTLE ring to the right to fix setting.

- The sub-item will stop flashing.



5. Turn the SHUTTLE ring to the right or press the SET UP button to finish setting.

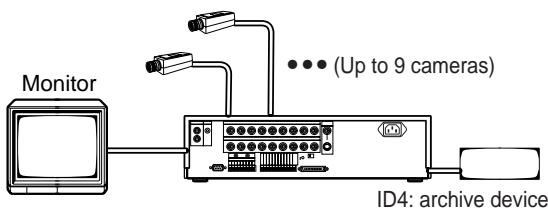
■ Operation example 1: Simultaneous Backup using the Timer

The Timer can be used for making weekly data backups when the unit is running in continuous recording mode. The unit will automatically eject the storage medium upon completion of the backup, and a new one may then be inserted into the machine.

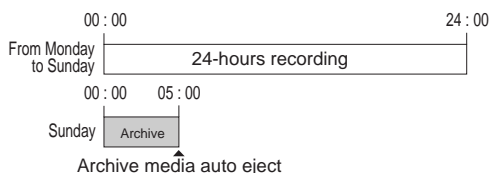
System configuration

Example of a system using the following peripherals:

- 9 connected video cameras
- Archive device connected to ID4
- Monitor



Images inputted by each of the connected cameras are recorded 24 hours a day, and the unit will make a backup of one week's volume of image data while it continues to record current images. The unit records one frame per second when REC P.GRADE is set to "BASIC", a recording rate of one frame per 9 seconds for each camera.

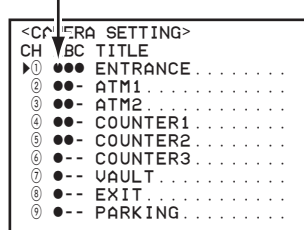


Settings

1) Camera settings are made as follows.

- Make the settings for the 9 cameras listed under column A in the <CAMERA SETTING> menu.

Operational cameras #① through #⑨

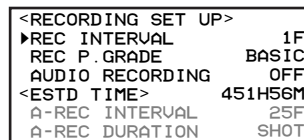


The number of cameras used in each of the operational modes A, B, C can be adjusted. Refer to page 38 for details.

▶ The sequential display of the picture will get slower when more cameras are connected.

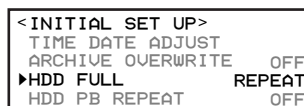
2) Recording settings are made as follows.

- Set REC INTERVAL to "1F".



▶ The capability to record continuously over a one-week period is dependent on the settings for recording interval and recording picture grade. For details on the relationship between intervals and image quality, refer to "Audio recording time table" on pages 71.

- Set REC P.GRADE to "BASIC".
- Set AUDIO RECORDING to "OFF".
- Set HDD FULL to "REPEAT".

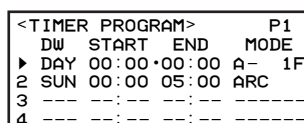


- Set AUTO EJECT to "ON".



3) Enter the following settings under P1 on the TIMER PROGRAM menu:

- In Timer programming number 2, set the action to BACKUP for Sunday's start time of 00:00 to end time of 05:00.
- Set the action to "A- 1F" for the daily start time of 00:00 to the next day's end time of 00:00. (This setting activates, for all of the cameras in operational mode A, a recording rate of one frame per second.)



▶ The symbol "●" will appear between the start-time and end-time columns. This symbol indicates that recording will continue until the following day.

INFORMATION

Non-regular recording mode can be set using the P2 operational mode in the <TIMER PROGRAM> menu. Once these settings are entered, the system can be switched between regular and non-regular operational modes as desired.

4) Set the Timer Program's operational mode to P1.

Upon completing the above settings, press the **TIMER REC** button. The unit will be in timer recording stand-by mode.

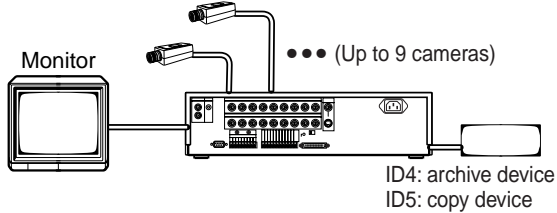
Operation example 2: Endless Repeat recording

Copies and backups of up to 3 days' volume of recorded data can be made when the unit is running in continuous recording mode. (Refer to page 52 for details on copying.)

System configuration

Example of a system using the following peripherals:

- 9 connected video cameras
- Archive device connected to ID4 or copying device connected to ID5
- Monitor



Images input by each of the connected cameras are recorded 24 hours a day.

- Set REC INTERVAL to "1.56F".
- Set REC P.GRADE to "STANDARD".
- Set AUDIO RECORDING to "ON".

```
<RECORDING SET UP>
▶REC INTERVAL      1.56F
REC P.GRADE        STANDARD
AUDIO RECORDING    ON
<ESTD TIME>       167H27M
```

- Set HDD FULL to "REPEAT".

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE OFF
▶HDD FULL          REPEAT
HDD PB REPEAT     OFF
```

Upon completing the above settings, press the unit's **REC** button to initiate continuous recording operation.

◆ Making copies as needed

To copy segments of recorded data while the unit is running in continuous recording mode, make the following adjustments:

- Change the automatic copy range setting to MANUAL, and enter the desired start-time and end-time of the data to be copied. (Refer to page 52.)

◆ Making backups as needed

To make backups, while the unit is running in continuous recording mode, of portions of the total data stored in the unit's hard disk, load the appropriate medium into the archive device and press the **ARCHIVE** button.

Operation example 3

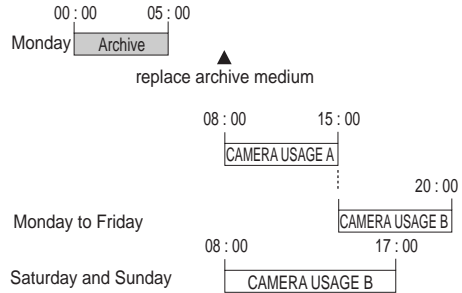
The number of video cameras can differ between operational modes A and B, and you may specify which set of cameras goes into effect at what time and/or on which day(s). Recording intervals can be reduced when the number of operational cameras is large, and recording intervals can be increased when using fewer cameras.

System configuration

Settings are entered so that the backups are created every Monday morning between 00:00 and 05:00. To facilitate the exchange of the storage medium after the backup has been completed, **AUTO EJECT** is set to "ON". Refer to "Audio-eject setting" on page 30 for details.

Cameras in **CAMERA USAGE A** are set to operate from 08:00 to 15:00 on Monday through Friday. Cameras in **CAMERA USAGE B** are set to operate from 15:00 to 20:00 on these same days.

Cameras in **CAMERA USAGE B** are set to operate from 08:00 to 17:00 on Saturday and Sunday. The overall schedule is as shown in the following chart.



Settings

1) Camera settings are made as follows. (Refer to page 38 for details on the "Camera usage setting" screen.)

- Set cameras #1 through #9 to operational mode A.
- Set cameras #1, #2, #3, #8, and #9 to operational mode B.

2) Recording picture grade (REC P.GRADE) is set to "STANDARD".

3) Settings for **TIMER PROGRAM** are made as follows.

- Designate Monday to Friday as the days of operation (SPECIAL DW). Then, in Program #1, set the action (MODE) to "A- 1F" for 08:00 to 15:00 on the designated days(SPL).
- In Program #2, set the action to "B- 1F" for 15:00 to 20:00 on the designated days.
- In Program #3, set the action to "B- 1F" for 08:00 to 17:00 on Saturday.
- In Program #4, set the action to "B- 1F" for 08:00 to 17:00 on Sunday.
- In Program #5, set the action to **BACKUP** for Sunday's start-time of 00:00 to end-time of 05:00.

Upon completing the above settings, press the unit's **TIMER REC** button to initiate Timer operation.

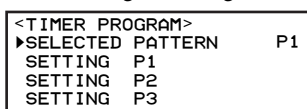
■ Setting the timer

When using the Timer to initiate operation, the SETTING P1 – P3 screens can be used to set different patterns of operation as desired. Recording patterns will then conveniently change according to the settings you have entered.

- ☑ Reset the date and current time before recording. Refer to page 11 for details on how to set date and time.

Example: Using Program #1 in SETTING P2, mode A cameras will record at intervals of 25F from 12:00 to 15:00 each day.

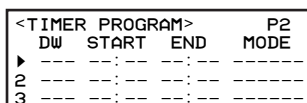
1. Press the SET UP button to display the <MENU SETTING> menu.
2. Turn the JOG dial to move the cursor to TIMER PROGRAM then turn the SHUTTLE ring to the right.
 - The <TIMER PROGRAM> menu will appear.



3. Check that the cursor is next to SELECTED PATTERN, then turn the SHUTTLE ring to the right to fix setting.

4. Turn the JOG dial to the right to flash P2, then turn the SHUTTLE ring to the right.
 - Timer program pattern 2 is selected now.

5. Turn the JOG dial to move the cursor to SETTING P2 and turn the SHUTTLE ring to the right.
 - The <TIMER PROGRAM> P2 will appear.



TIMER SETTING screen

Program Number	DW	START	END	MODE
1	---	---	---	---
2	---	---	---	---
3	---	---	---	---
4	---	---	---	---
5	---	---	---	---
6	---	---	---	---
7	---	---	---	---
8	---	---	---	---

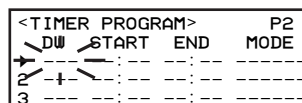
SPECIAL DW: SUN-SAT

7) Special Day of the Week setting

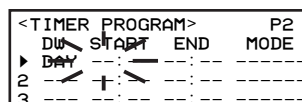
- 1) Settings for up to 8 programs can be made per screen.
- 2) Settings for the DW column include:
 - The days of the week from Monday to Sunday (SUN-SAT).
 - DAY (to record at the same time every day).
 - SPL (to record on the days displayed at the bottom of the screen).
- 3) Time is displayed in 24-hour format. When settings for recording times overlap, the unit will give priority to the higher-numbered Program.
- 4) This symbol indicates that recording time overlaps into the following day. Continuous recording is programmed by selecting "DAY" in the DW column and entering the same time in both the start-time and end-time settings.
- 5) Display of the program's end-time.
- 6) Display of the selected setting for recording interval.

- 7) Display of the user-specified days for a program. When "SPL" is selected in the DW column, the unit will initiate the program on the days specified.

5. Check to see that the cursor is on Program #1, then turn the SHUTTLE ring to the right to select the DW column.

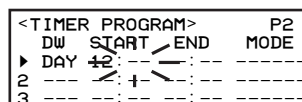


6. Turn the JOG dial until "DAY" is displayed on-screen, then turn the SHUTTLE ring clockwise to complete this setting.
 - The cursor will move to the start-time column.

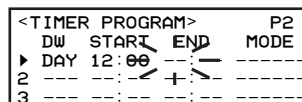


- ☑ If the wrong day has been selected, turn the SHUTTLE ring counterclockwise to return to the Day of the week(DW) column. Use the JOG dial to correct the entry, then once again turn the SHUTTLE ring clockwise to complete this setting.

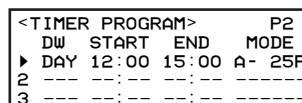
7. Use the JOG dial to select "12" in the hour column, then turn the SHUTTLE ring to the right to complete this setting.
 - The cursor will move to the left half of the minutes column.



8. Use the JOG dial to select "00" in the minutes column, then turn the SHUTTLE ring clockwise to complete this setting.
 - The cursor will move to the right half of the minutes column. Using this same process, complete the setting for the program's end-time.



9. Set the MODE column.
 - The first field is for selecting the cameras. Use the JOG dial to select "A-", and turn the SHUTTLE ring clockwise to complete this setting.
 - The next field is for setting the recording interval. Use the JOG dial to select the desired interval, then turn the SHUTTLE ring clockwise to complete this setting.



- ☑ For effective multiplication, various settings for operational cameras and recording intervals can be selected in the Action fields. Refer to page 38 for details on CAMERA SETTING.

- ☑ If entries for one or more fields in a program are left empty, the cursor will return to the DW column. complete the program setting.

10. To set other programs, repeat steps #5 through #9.
 - Up to 8 programs can be set per screen.
 - To erase a program entry, press the "WARNING RESET" button during the programming procedure.
11. Turn the SHUTTLE ring to the right or press the SET UP button.
 - Turning the SHUTTLE ring to the left moves the cursor to the previous entry. Pressing the SET UP button closes the <TIMER PROGRAM> menu.

12. Press the **TIMER REC** button.

- The **TIMER REC** indicator illuminates.
- If the current time is covered by a program, the unit will begin recording immediately.
- If the current time is not covered by a program, the unit will turn the power off and go into stand-by mode.
- Operation can be shut down completely by pressing the **TIMER REC** button once more.

Other settings

“SKIP”: The SKIP setting can be used to temporarily shut down the recording. Recording will stop for the specified time frame, and the unit's main power will automatically turn off.

“POWER”: Used when alarm recording is set with the Timer, this setting keeps the unit idle, but with the power on, during the specified time frame.

“ARCHIVE”: This setting is used for making backups of data stored in the unit's hard disk drive.

! Estimating the possible recording duration when using the Timer

Please note when using the Timer that there may be instances where, because of recording interval, image quality, and audio recording settings, there is insufficient recording space on the unit's hard disk drive to complete the Timer recording as programmed.

Please note that when the recording interval setting differs on the **RECORDING SET UP** screen and **TIMER PROGRAM** screen, the possible recording duration will differ from the duration displayed in **ESTD TIME** on the **RECORDING SETTING** screen.

When setting the Timer for multiple programs, please refer to the Recording time table on page 71 to confirm the amount of hard disk space the recording duration will take up under different setting conditions.

<TIMER PROGRAM>		P2
DW	START	END MODE
1 DAY	12:00	15:00 A- 25F
▶ DAY	13:00	22:00 A-12.5F
3 ---	---	---

Using the Timer setting of as an example of estimating possible recording duration, the chart below shows that everything is recorded on the first day, and on the second day only remain 16.7% of Program 1 content is recorded on the hard disk drive. (Conditions ; recording picture grade is set to “HIGH”, Audio Recording is set to “OFF”, built-in 30GB hard disk drive, Storage Limit set to “OFF”).

Program	Recording time for one day (A)	Possible duration for Consecutive Recording (B)	HDD recording space (A/B)
1	3 hour (180 minutes)	9 hour (540 minutes)	33.3%
2	9 hour (540 minutes)	18 hour (1080 minutes)	50.0%

◆ Setting **SPECIAL DW** (special day of the week)

By entering a program's start-day and end-day, the unit can be set to record during a specific time frame over any number of days in the week. The unit will record on the days entered into the program which displays “SPL” in its DW column.

Example: MON - FRI are designated as the days used in **SETTING P1**.

The settings for the start-day and the end-day cannot be identical.

1. Press the **SET UP** button to display the <MENU SETTING> menu. Turn the **JOG** dial to move the cursor to **TIMER PROGRAM** then turn the **SHUTTLE** ring to the right.

• The <TIMER PROGRAM> menu will appear.

2. Turn the **JOG** dial to move the cursor to **SETTING P1** then turn the **SHUTTLE** ring to the right to display the <TIMER PROGRAM> menu of P1.

<TIMER PROGRAM>	
SELECTED PATTERN	P1
▶SETTING	P1
SETTING	P2
SETTING	P3

3. Turn the **JOG** dial to move the cursor to select “SPECIAL DW”, then turn the **SHUTTLE** ring to the right.

7 SPL	12:00	13:00	A-	25F
8 DAY	13:00	14:25	B-	12.5F
▶SPECIAL DW:	TUE-FRI			

4. Turn the **JOG** dial to select “MON” then turn the **SHUTTLE** ring to the right.

7 SPL	12:00	13:00	A-	25F
8 DAY	13:00	14:25	B-	12.5F
▶SPECIAL DW:	MON-FRI			

5. Turn the **JOG** dial to select “FRI” then turn the **SHUTTLE** ring to the right.

• The flashing will stop.

7 SPL	12:00	13:00	A-	25F
8 DAY	13:00	14:25	B-	12.5F
▶SPECIAL DW:	MON-FRI			

6. Press the **TIMER REC** button.

- The **TIMER REC** indicator will illuminate.
- If the current time is covered by a program, the unit will begin recording immediately.
- If the current time is not covered by a program, the unit will turn the power off and go into stand-by mode.
- Operation can be shut down completely by pressing the **TIMER REC** button once more.

The unit will not record if there is an error in Timer settings. The following provides a list of measures for dealing with errors in Timer settings.

Symptom 1)

The **TIMER REC** indicator is flashing. The buzzer sounds if the **BUZZER** setting is set to **WRNG**.

Content of this Error

- 1) The present time or the Timer is not set.
- 2) The timer program has been made on <TIMER PROGRAM> page, but the correct **SELECTED PATTERN** is not selected on the <TIMER PROGRAM> menu.
- 3) Menu setting is not yet completed.

Countermeasure

- 1) Set the correct present time (page 11).
- 2) Select the correct **SELECTED PATTERN** (page 43).
- 3) Complete the menu setting.

Symptom 2)

The Timer recording would not start even when the time is ready for timer recording.

Content of this Error

1) HDD FULL setting on the <INITIAL SET UP> menu is set to "STOP".

Countermeasure

1) Set the HDD FULL to other settings except "STOP" (page 30).

Symptom 3)

The Timer backup would not start even when the time is ready for timer backup.

Content of this Error

1) The medium of the peripheral connected recording device.

Countermeasure

1) Insert the new medium and press the WARNING RESET button to erase warning on screen. Press the TIMER REC button to release the timer, then press the TIMER REC button again.

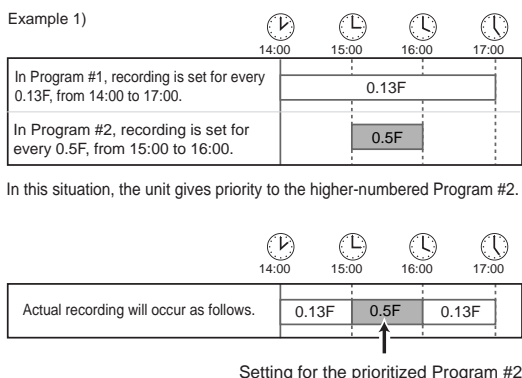
Overlapping Timer settings

When Timer settings overlap, the unit will give priority to the higher-numbered program.

Example #1

- Program #1 is set for 14:00 to 17:00 with a recording interval of 0.13F.
- Program #2 is set for 15:00 to 16:00 with recording interval of 0.5F.

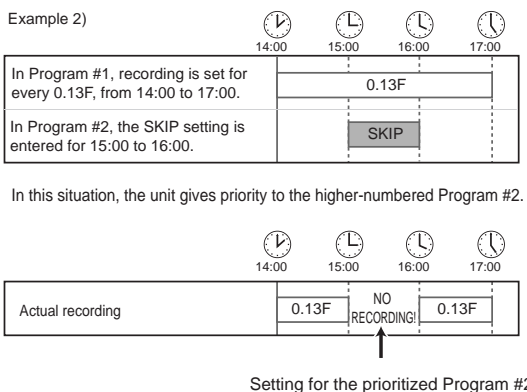
Under this condition, the unit will give priority to Program #2 for the duration of the overlapping period, from 15:00 to 16:00. The unit will operate as shown in the chart below.



Example #2

- Program #1 is set for 14:00 to 17:00 with a recording interval of 0.13F.
- Program #2 is set for 15:00 to 16:00 with the SKIP setting.

Again, the unit will give priority to Program #2 for the duration of the overlapping period. As shown in the illustration below, the unit will activate the Skip setting from 15:00 to 16:00.



Alarm Recording

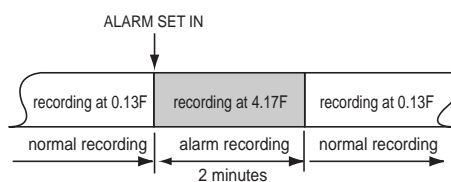
When an alarm sensor connected to the ALARM IN terminal is triggered, the unit will switch to the interval setting established for Alarm Recording and make detailed recordings of the situation.

When running in Alarm Recording mode, the unit will continue to record for the entire Alarm Recording duration even if the end-time specified in a Timer Program has been exceeded. Refer to page 33.

Alarm Recording operation

When the ALARM IN terminal is triggered during normal operation, the unit will respond as shown in the illustration below.

Example: The unit is programmed for 0.5F recording intervals, and Alarm Recording is set at intervals of 4.17F and for a duration of 2 minutes.

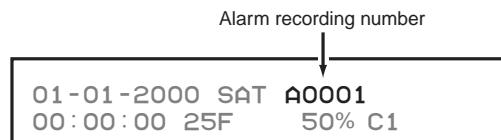


Setting Alarm Recording

For details of the setting please refer to "Alarm recording settings" on page 33.

Operations during Alarm Recording

1) An index signal will automatically be stored in memory when Alarm Recording begins.



2) If the unit receives a new alarm signal while running in Alarm Recording mode, the unit will complete the Alarm Recording session initiated by the new signal.

3) If the unit receives an alarm signal while settings are being made on the on-screen menus, the unit will exit the menu screen and begin Alarm Recording.

Alarm Recording time indicators

When Alarm Recording is started, the unit will store a user-confirmable data entry of the time it receives the alarm signal. To access this data entry, press the SEARCH button to call-up the <SEARCH SELECTION> menu and select ALARM LIST SEARCH. Use the JOG dial to move the cursor to the desired entry, and turn the SHUTTLE ring to retrieve the entry. (Refer to page 50 for details on "Alarm List Search".)

1) Up to 500 entries for Alarm Recording start time can be displayed. After 500 entries, entry #1 will be erased and #501 will be added to the list, and so on.

2) As an index signal is also automatically stored at the beginning of Alarm Recording, the Alarm Recording start-time can also be retrieved using INDEX SEARCH. (Refer to page 50 for details on "Index Search".)

◆ Alarm Recording indicators

1) If the DISPLAY MODE is set for values other than 5 or 6, an Alarm Recordings count will automatically appear on-screen while the unit is running in Alarm Recording mode. (Refer to page 24 for details on DISPLAY MODE.)

2) The Alarm Recording indicator will flash on and off during Alarm Recording, and will stay on at the completion of Alarm Recording.

☑ If the Alarm recording was made even once, the ALARM REC indicator would keep illuminating.

3) The Alarm Recording counter has a maximum of 9999. When this figure is exceeded, the count will return to 0001.

◆ Operation after Alarm Recording

1) At the end of Alarm Recording, the unit will return to the same recording intervals which were in effect before the activation of Alarm Recording.

◆ Indexing Alarm Recording time

When the ALARM REC CH. on the <MPX FUNCTIONS> menu is set to "SEP", the index signal will be included at the top of the entry for the designated camera with the smallest channel number.

◆ Alarm recording cameras

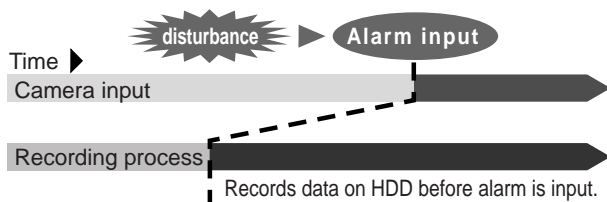
Please refer to "Setting of Alarm recording camera" on page 39 for details.

■ Basic recordings

Please refer to "Basic recordings" on page 12 for details.

■ Pre-alarm Recording

When the Alarm Recording is in effect, the unit is also able to make recordings of images taken a few seconds before a signal is received by the ALARM IN terminal.



• Images captured prior to the ALARM IN terminal being triggered will be recorded.

☑ The duration of the Pre-alarm Recording will vary according to the content of the Pre-alarm Recording. The duration of the recording may be lengthened depending on such factors as the recording content and the timing of alarm signal reception.

• When Pre-Alarm Recording has been set, all the cameras designated under CAMERA SETTING in the <MPX FUNCTIONS> menu will execute this function. After the alarm is triggered, only the channels using cameras selected in the ALARM REC CH. setting will be recorded. Because of this, when the ALARM REC CH. is set to "SEP", the number of recording cameras used in pre-alarm and post-alarm recording will differ, and the recording intervals between the two stages will also differ during playback.

INFORMATION

Recording and playback cannot be done when the pre-alarm indicator light is on. In this case, press the User button to cancel this condition.

The Pre-alarm Recording function can also be used with Timer operation.

1. Set the action in *TIMER PROGRAM* to *POWER*.

2. Follow the procedure described in *Pre-Alarm recording* on page 34 to make necessary settings for pre-alarm recording.

3. Press the *TIMER REC* button.

• Pre-alarm stand-by mode will start when time is ready.

4. Activate the *ALARM IN* terminal.

• Pre-alarm Recording will start automatically.

■ Repeat Recording

When HDD FULL is selected in the <INITIAL SET UP> menu, it is possible to specify what the unit will do when its memory becomes full. By selecting "REPEAT" in the HDD FULL setting, the unit will continue to record by automatically over-writing the data on its hard disk.

Example: "REPEAT" is selected in the HDD FULL setting.

1. Press the *SET UP* button to display the <MENU SETTING> menu.

2. Turn the *JOG* dial to move the cursor (▶) to *INITIAL SET UP*.

```
REAR TERMINAL
SERVICE
▶INITIAL SET UP
```

3. Turn the *SHUTTLE* ring to the right to display the <INITIAL SET UP > menu.

```
<INITIAL SET UP>
▶TIME DATE ADJUST
ARCHIVE OVERWRITE OFF
HDD FULL STOP
HDD PB REPEAT STOP
AUTO EJECT ON
ARCHIVE DATA ALL
```

4. Turn the *JOG* dial to move the cursor to *HDD FULL*, then turn the *SHUTTLE* ring to the right to flash the sub-item.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE OFF
▶HDD FULL REPEAT
HDD PB REPEAT STOP
AUTO EJECT ON
ARCHIVE DATA ALL
```

5. Turn the *JOG* dial till *REPEAT* appears. Turn the *SHUTTLE* ring to the right to fix setting.

• The sub-item will stop flashing.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE OFF
▶HDD FULL REPEAT
HDD PB REPEAT STOP
AUTO EJECT ON
ARCHIVE DATA ALL
```

6. Turn the *SHUTTLE* ring to the right or press the *SET UP* button.

◆ **Operation when the hard disk drive becomes full**
 “REC•STANDBY”(Recording standby): The unit stops recording at the moment its hard disk becomes full. The unit will begin recording by over-writing its hard disk when the unit receives an alarm signal or a REC terminal signal, or when the REC button is pushed.

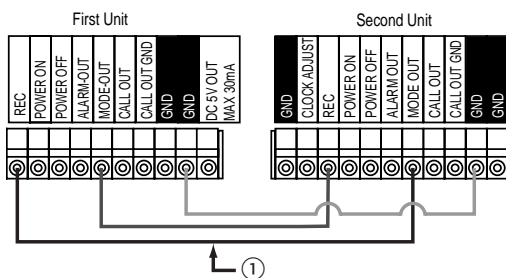
“ALARM•PROT”(Alarm protection): If there is even one instance of Alarm Recording to finish setting, the unit will stop recording the moment its hard disk becomes full and will display the HDD FULL message on the monitor. When WRNG is entered as the BUZZER value (found in the <REAR TERMINAL> menu), the buzzer will also be activated. When the CALL OUT value (found in the <REAR TERMINAL> menu) is ON, a CALL OUT signal will be emitted from the CALL OUT terminal. If there are no instances of Alarm Recording during recording, the unit will continue recording by automatically over-writing its hard disk.

“STOP”: The unit will stop recording at the moment the hard disk becomes full, and will display the HDD FULL message on the monitor. When WRNG is entered as the BUZZER value (found in the <REAR TERMINAL> menu), the buzzer will also be activated. The unit will stop recording when there is no more storage space in memory. When the CALL OUT value (found in the <REAR TERMINAL> menu) is ON, a CALL OUT signal will be emitted from the CALL OUT terminal. To restart over-writing on the hard disk, first press the WARNING RESET button to cancel HDD FULL, and then press the REC button.

■ **Series Recording**

By connecting multiple units as show in the chart below and selecting REC•STANDBY in the HDD Repeat Recording setting, this unit can perform Series Recording. In Series Recording, when the first unit’s hard disk has become full, the second unit automatically begins recording.

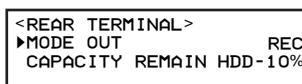
System configuration (using two units)



INFORMATION In this example, when the first unit’s hard disk reaches its maximum storage capacity, the second unit will begin recording; when the second unit’s hard disk reaches its maximum storage capacity, the first unit will begin recording by over-writing its hard disk. If you do not want the first unit to begin the over-writing process, then configure the system as illustrated in the graph (see ① above). The Series Recording function can also be put into effect by connecting the CALL OUT terminal in place of the MODE OUT terminal, and the disk storage capacity setting is made in the <CALL OUT> menu. When the CALL OUT terminal is used, if the first unit experiences malfunction or cannot otherwise continue recording, the second unit will initiate its recording process.

◆ **Setting the Series Recording (for both units)**

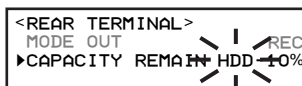
1. Press the SET UP button to display the <MENU SETTING> menu.



2. Turn the JOG dial to move the cursor to the REAR TERMINAL then turn the SHUTTLE ring to the right.

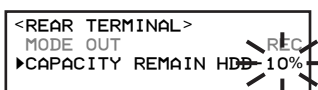
3. Turn the JOG dial to move the cursor to CAPACITY REMAIN then turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



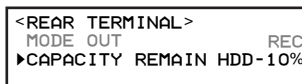
4. Check that the “HDD” is flashing. Turn the SHUTTLE ring to the right.

- Choose the HDD so that the second unit begins recording when the first unit’s hard disk approaches its storage limit.
- The flashing will move to capacity setting.



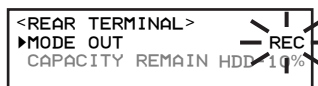
5. Turn the JOG dial till desired capacity remain appears and then turn the SHUTTLE ring to the right.

- The sub-item will stop flashing.



6. Turn the JOG dial to move the cursor to MODE OUT and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



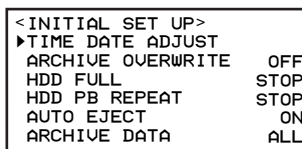
7. Turn the JOG dial to flash “REMAIN” and turn the SHUTTLE ring to the right.

- The sub-item will stop flashing.



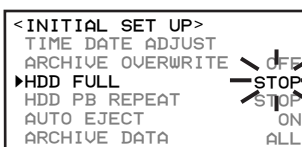
8. Display the <INITIAL SET UP> menu.

- Press the SET UP button to display the <MENU SETTING> menu. Move the cursor to INITIAL SET UP and turn the SHUTTLE ring to the right.



9. Turn the JOG dial to move the cursor to HDD FULL and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.



10. Turn the JOG dial to display REC•STANDBY and turn the SHUTTLE ring to the right.

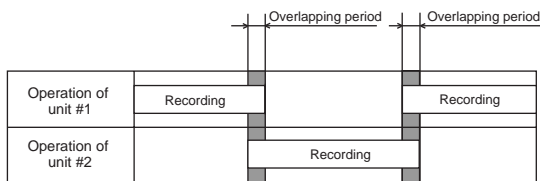
- The sub-item will stop flashing.

```
<INITIAL SET UP>
TIME DATE ADJUST
ARCHIVE OVERWRITE OFF
▶HDD FULL REC•STANDBY
HDD PB REPEAT STOP
AUTO EJECT ON
ARCHIVE DATA ALL
```

11. Turn the SHUTTLE ring to the left or press the SET UP button.

◆ Operation during Series Recording

When the storage capacity of the first unit's memory reaches a pre-specified level, the second unit will begin recording. Conversely, when the second unit's memory capacity reaches a pre-specified level, the first unit will begin recording. Through this exchange, recording will continue uninterrupted.



■ Shot Recording

By selecting "SHOT" in the REC INTERVAL setting, a user-specified number of frames will be recorded every time the REC button is pressed (or every time the REC terminal is activated). It is also possible to establish a specific time frame for putting this function into effect, so that the unit will automatically record a certain number of frames without the REC button being pressed (or the REC terminal being grounded).

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to RECORDING SET UP and turn the SHUTTLE ring to the right.

- The <RECORDING SET UP> menu will appear.

```
<RECORDING SET UP>
▶REC INTERVAL 25F
REC P.GRADE HIGH
AUDIO RECORDING OFF
```

3. Turn the SHUTTLE ring to the right again to flash the sub-item of REC INTERVAL.

```
<RECORDING SET UP>
▶REC INTERVAL 25F
REC P.GRADE HIGH
AUDIO RECORDING OFF
```

4. Turn the JOG dial to flash "SHOT". Turn the SHUTTLE ring to the right to set the sub-item.

- The sub-item will stop flashing.

```
<RECORDING SET UP>
▶REC INTERVAL SHOT
REC P.GRADE HIGH
AUDIO RECORDING OFF
```

5. Turn the JOG dial to move the cursor to ONESHOT•INTERVAL and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.

```
PRE A-REC OFF
ONESHOT•FIELD 1
▶ONESHOT•INTERVAL SHOT
```

6. Turn the JOG dial to flash "SHOT", and turn the SHUTTLE ring to the right to finish setting.

- The sub-item will stop flashing.

```
PRE A-REC OFF
ONESHOT•FIELD 1
▶ONESHOT•INTERVAL SHOT
```

Shot Recording will automatically begin at the specified time frame when settings other than the "SHOT" settings of 15 sec., 30 sec., 45 sec., 1 min., 2 min., 3 min., 5 min. is entered. In this case, recording will begin even if the REC button has not been pressed (or the REC terminal has not been grounded).

7. Turn the JOG dial to move the cursor to ONESHOT•FIELD and turn the SHUTTLE ring to the right.

- The sub-item will start flashing.

```
PRE A-REC OFF
▶ONESHOT•FIELD 1
ONESHOT•INTERVAL SHOT
```

8. Turn the JOG dial to flash "1" and turn the SHUTTLE ring to the right to finish setting.

- The sub-item will stop flashing.

```
PRE A-REC OFF
▶ONESHOT•FIELD 1
ONESHOT•INTERVAL SHOT
```

The number of frames to be recorded is set each time the REC button is pressed (or the REC terminal is grounded). The desired number of frames can be selected from among the following: 1, 2, 3, 4, 5, 10, 20, 30.

9. Turn the JOG dial to the left or press the SET UP button.

10. Press the REC button or ground the REC terminal.

- After recording the number of frames specified in the Shot Recording setting, the unit will go into Shot Recording standby mode.

11. Press the REC button to ground the REC terminal again if necessary.

- A pre-specified number of frames will be recorded each time this operation is executed.

During Shot Recording, please leave an interval of at least 0.5 seconds between each activation of the REC terminal (or each press of the REC button).

12. Press the STOP button to stop recording.

■ Playing still frames

1. Press the PAUSE button during playback.

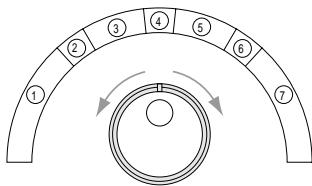
- The unit will shift into still frame mode. By pressing the PAUSE button once again, the unit will return to its previous mode.
- By pressing the Camera number button while the still frame is displayed, the unit will conduct a forward search of that channel's images and immediately display them on-screen.

■ Shuttle viewing

The SHUTTLE ring can be used to adjust playback speed to varying rates. Playback speed will vary according to how far the SHUTTLE ring is turned.

☞ The unit will shift to still frame playback mode when the SHUTTLE ring is returned to its former position.

1. Press the PAUSE button during playback, and then turn the SHUTTLE ring.



- ① Reverse speed search (1MB units)
- ② Reverse speed search (5X speed)
- ③ Reverse speed search (3X speed)
- ④ Still frame playback
- ⑤ Forward speed search (3X speed)
- ⑥ Forward speed search (5X speed)
- ⑦ Forward speed search (1MB units)

■ Shuttle hold

By pressing the PAUSE button during playback (or reverse playback), the unit will shift into still frame mode. Rotate the SHUTTLE ring in the desired direction and to the desired search speed, then press the PAUSE button while holding the SHUTTLE ring to position. Search speed will be maintained even when the SHUTTLE ring is returned to its original position.

■ Direct shuttle viewing

Direct shuttle playback can be activated by turning the SHUTTLE ring during playback or reverse playback.

☞ The unit will shift to regular playback mode when the SHUTTLE ring is returned to its former position.

1. Turn the SHUTTLE ring during playback.

Please refer to the above diagram for the playback speed.

INFORMATION

When playback images recorded at different recording intervals, there may be rare occasions when playback speed differs from the original recording rate.

■ Frame-by-frame playback

1. Turn the JOG dial in either direction during still frame playback.

- Turn the JOG dial to the right to move forward one frame and to the left to move back one frame. Continue turning the JOG dial to the right for forward playback of consecutive frames and to the left for reverse playback of consecutive frames. Stop turning the dial for still frame viewing.
- During frame-by-frame playback in single-screen display mode, playback will lag behind rapid JOG dial rotation be-

cause the unit is simultaneously engaged in searching for images in the displayed channel.

■ Reverse playback

1. Press the REV PLAY button when the unit is not in operation.

- The unit will begin reverse playback.

☞ On the first reverse playback after the power switch is turned on or after recording, the unit will start by displaying the last recorded image.

■ Changing playback intervals

When the PLAY or REV PLAY button is pressed while the unit is not in operation, playback will occur at the same intervals as the recording intervals. Playback intervals can be changed, however, when the PLAY or REV PLAY button is pressed while the unit is in playback or reverse playback operation. (The unit will emit a sound to indicate that playback interval has been changed.)

☞ Playback intervals can be confirmed on-screen by using the single-screen display mode and entering "2" or "3" in the DISPLAY MODE setting of the <TIME DATE DISPLAY> menu.

☞ The audio recording cannot be played when playback interval has been altered, even if the playback interval is returned to its original rate. To play back the audio recording, stop playback once and restart it at the original rate.

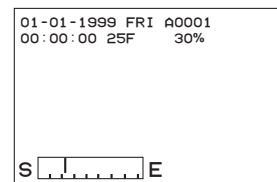
- Playback or reverse playback intervals are speed up when the PLAY button is pressed, and playback or reverse playback intervals are slowed down when the REV PLAY button is pressed.

INFORMATION

This is a convenient function for slow viewing of recordings with fast movement as well as fast playback of images captured at long recording intervals.

■ High-speed fast-forward/high-speed rewind

When the SHUTTLE ring is turned clockwise or counter clockwise for over one second during STOP mode, the unit will shift into high-speed fast-forward or high-speed rewind mode, and an indicator will appear at the bottom left of the monitor. "S" denotes the start point of the data stored in the hard disk, and "E" denotes the end point. The vertical line marks the current position.



■ Monitor display settings and playback operation

- Single screen: The screen will change frame by frame at a rate equal to the recording interval multiplied by the number of cameras used in the recording.
- SPLIT 4: Each mini-screen will change frame by frame at a rate equal to the recording interval multiplied by the number of cameras used in the recording. The screen display shift to still frame mode during playback from a camera which is not indicated.
- SPLIT 9: Each mini-screen will change frame by frame at the recorded rate.

Various search

Time date search

Please refer to page 14 for detailed operation.

Index Search

During Alarm Recording, an index signal will automatically be written onto the hard disk. Index Search is a process of retrieving still frames using their associated index signal.

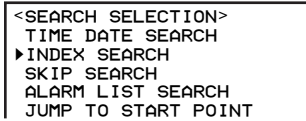
The index count can be set, as desired, up to 99.

Example: Enter 10 for the index count, then start a search.

1. Press the SEARCH button to display the <SEARCH SELECTION> menu.

2. Turn the JOG dial to move the cursor to INDEX SEARCH and turn the SHUTTLE ring to the right.

The <INDEX SEARCH> menu will appear.



3. Turn the JOG dial to display the desired index count, then turn the SHUTTLE ring to the desired search direction. (Turn right to move forward, turn left to move in reverse.)

When using DDS tape, index searches can be performed in the forward direction only.

- Index Search will begin, and images of the desired index count will appear on SPLIT 9 screen as still frames.
- The index count will begin blinking if the index signal has not been recorded, i.e., the Index Search will not be executed. Press the SEARCH button when the unit returns to normal playback mode.



4. To change the search image from SPLIT 9 screen to the single screen, select the camera number by pressing the CAMERA NUMBER button on the front of this unit.

- First press the SEARCH button, then delete the <SEARCH SELECTION> menu.
- The selected image will be shown on the Single screen mode.

Cannot change the display, during the search selection menu will appear.

5. To play back search results.

- Press either the PLAY button or the PAUSE button.

Refer to page 49 for details on Various playback.

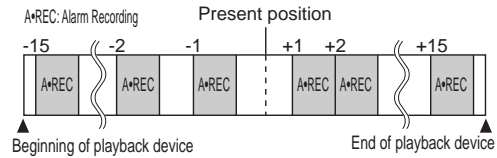
To exit the <INDEX SEARCH> menu without activating the search, press the SEARCH button on the front of the unit.

6. Press the STOP button to stop playback and still frame mode.

- Press the SEARCH button, the display will revert to its original state.

How to count index signals

Present time in the diagram below represents the point of playing back or stopped playing back. To search index with "+", turn the SHUTTLE ring to the right to search forward. To search index with "-", turn the SHUTTLE ring to the left to search backward.



Skip Search

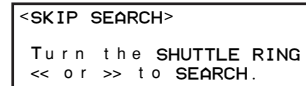
Skip Search is a process where the unit automatically searches for an index signal, then retrieves the visuals associated with that index and plays back the images for 5 seconds each.

To play back search results, press the PLAY button for the desired image.

1. Press the SEARCH button to display the <SEARCH SELECTION> menu.

2. Turn the JOG dial to move the cursor to SKIP SEARCH then turn the SHUTTLE ring to the right.

The <SKIP SEARCH> menu will appear.



3. Turn the SHUTTLE ring to desired direction (Forward search to the right and reverse to the left).

- The unit begins the Index Search, and plays back the images associated to the index for five seconds each on SPLIT 9 screen.

Depending on the recording condition of the index signal, there might be occasions when Skip Search cannot be performed.

The unit cannot be selected to single screen display mode during Skip Search.

4. Press the STOP button to stop searching.

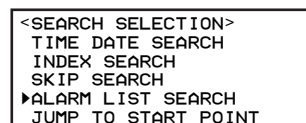
Alarm List Search

When Alarm Recording is initiated (refer to page 45), the Alarm Recording start time will be added to the Alarm List. Alarm List Search is a process which uses the associated Alarm Recording start time to retrieve a desired image for still frame playback.

Alarm Recording start-times can be registered up to 500 times. After the 500th time, the first start-time will be erased and the 501st start-time will be added to the list.

1. Press the SEARCH button to display the <SEARCH SELECTION> menu.

2. Turn the JOG dial to move the cursor to ALARM LIST SEARCH then turn the SHUTTLE ring to the right to display the <ALARM LIST SEARCH> menu.



3. Turn the JOG dial till the cursor goes to desired alarm list number, then turn the SHUTTLE ring to the right.

- The unit begins the ALARM LIST SEARCH, and retrieves the image associated with the selected time (or the time closest to the selected time) for still frame playback on SPLIT 9 screen.


```

<ALARM LIST SEARCH>
No.  DATE      TIME      C
0003 26-01-2001 18:54:25 ②
0002 26-01-2001 18:34:40 ④
▶0001 25-01-2001 18:20:00 ①
    
```

☞ The JOG dial can be used to move the cursor line-by-line through the list. When the cursor reaches either the top or the bottom of the list, the <ALARM LIST SEARCH> menu will scroll to the next page. To move through the pages, place the cursor over “No.”, and turn the SHUTTLE ring.

☞ When over-writing data stored on the hard disk drive, the start-time for a given Alarm Recording will be automatically erased from the Alarm List when the image data recorded at the start of that Alarm Recording is over-written.

4. Repeat steps 4 to 6 of Index search on page 50 to display the single screen, to play back and to stop the search results.

■ Jump to Start point

A process for finding the start point of oldest recorded data, and delivering that start-point on-screen as a still frame.

1. Press the SEARCH button to display the <SEARCH SELECTION> menu.
2. Turn the JOG dial to move the cursor to JUMP TO START POINT and turn the SHUTTLE ring to the right.

```

<SEARCH SELECTION>
TIME DATE SEARCH
INDEX SEARCH
SKIP SEARCH
ALARM LIST SEARCH
▶JUMP TO START POINT
    
```

3. Turn the SHUTTLE ring to the right when the <JUMP TO START POINT> menu appears.

- The unit begins the first search and displays the still frames of the opening part of the recording on a SPLIT 9 screen. For full-screen viewing of a particular frame, press the button of that image's camera number.

```

<JUMP TO START POINT>
Turn the SHUTTLE RING
>> to EXECUTE.
    
```

☞ To play back search results, press either the PLAY button or the PAUSE button.

4. Press the STOP button to stop searching.
 - The display will revert to its original state.

■ SCSI ID number allocation

ID0 to ID3 are allocated to the main hard disk drive. ID4 is allocated to the archive device, and ID5 is allocated to the copy device.

■ Choosing among the devices

The device to be played can be chosen using the PLAY DEVICE button located on the main unit's front face. Check to see that the selected device's PLAY DEVICE indicator is on.

1. Press the POWER button.
2. Insert the medium of archive device or copy device.

☞ During playback of the archive device or copy device media, playback can be made using an interval that differs from the recording interval by pressing the PLAY button or the REV PLAY button. Visual quality will depend on the device's transmission speed.

3. Select the device to be played by pressing the PLAY DEVICE button on the front of this unit. The selected device's indicator light will turn on.



☞ Check whether the connected device's access lamp is on.

4. Press the PLAY button.
 - The device will start playing after a still picture has been displayed.

☞ Various play and search options using the SHUTTLE ring are possible during playback of the copy device, although there will be some delay before images are displayed.

INFORMATION

When the DDS device is used as a peripheral, there will be a few minutes delay in playback and eject, depending on the condition of the recording.

■ Copying from the hard disk to the copy device

This unit features the capability to use a designated copy device to copy data recorded on its hard disk. In addition, the Copy range can be specified.

☞ The copy device must be connected to ID5 when copying recorded material. Refer to page 18 for more details on ID numbers.

- Set the COPY DIRECTION on the <COPY SELECTION> menu to “HDD → COPY”.
- Set the OVERWRITE on the <COPY SELECTION> menu to “OFF”. Refer to page 15 for details on the <COPY SELECTION> menu settings.

☞ When “ON” is selected, previously recorded data will be erased and the designated Copy range will be copied. When “OFF” is specified, copying will begin at a point after the previously recorded data.

■ Restoring items onto the hard disk from the copy device

This unit features the capability to restore recorded data to the hard disk from a copy device. In addition, the restore range can be specified.

- Set the COPY DIRECTION on the <COPY SELECTION> menu to "COPY → HDD".
- "ON" is the only setting available for the OVERWRITE on the <COPY SELECTION> menu.

■ Restoring items from the archive device to the hard disk

This unit features the capability to restore recorded data to the hard disk from an archive device. In addition, the Restore range can be specified. "ON" is the only available setting for the Restore function.

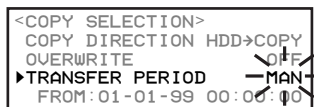
- The archive device must be connected to ID4 when making backups of recorded material. Refer to page 18 for more details on ID numbers.

◆ Manual setting of Copy range

1. Press the COPY button.

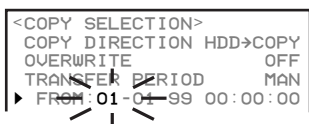
- The <COPY SELECTION> menu will appear.
- Use the JOG dial and SHUTTLE ring to designate the copy destination.

2. Use the JOG dial to move the cursor to "TRANSFER PERIOD", then turn the SHUTTLE ring clockwise to select "MAN".



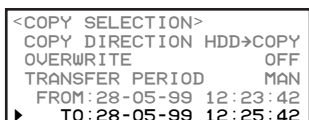
3. Turn the SHUTTLE ring clockwise to enter the MAN setting, then use the JOG dial to move the cursor to the start-time field and turn SHUTTLE ring clockwise.

- The Date column will start blinking.

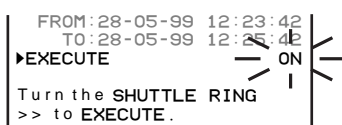


4. Use the JOG dial and SHUTTLE ring to set the desired start-time and end-time.

- To establish the start-time and end-time settings, use the SHUTTLE ring to move the flashing area to the far right, then turn the SHUTTLE ring clockwise.



5. Use the JOG dial to move the cursor to EXECUTE, then turn the SHUTTLE ring clockwise to select "ON".



6. Turn the SHUTTLE ring clockwise to initiate the Copy or Restore functions.

- When Copy range is set manually, the unit will execute the Copy function at a range slightly larger than the setting.

- If the Copy range exceeds the amount of available storage space in the copy medium, the unit will issue a size error warning during copy operation. In this case, either reset the Copy range or replace the copy medium. Refer to page 75 for more details on warning indicators. In addition, if the COPY button is pressed when the Copy range is set to "ALL", the unit will automatically input the Copy range. This does not mean, however, that the Copy function has been started.

INFORMATION

The unit is capable of recording onto its hard disk while executing the Copy function. The unit generates a OVERTAKE warning during copying when hard disk over-writing is being approached. When it is exceeded, a CALL OUT signal will be emitted from the CALL OUT terminal, and the Copy function will be halted.

◆ Automatic settings for Copy range

By setting "TRANSFER PERIOD" to "ALL" or "A/B", the process of setting copy range becomes greatly simplified. Refer to steps 1 to 3 on the left for the setting procedure.

- When "ALL" is selected, the start- and end-times of the data recorded in the hard disk are displayed. Select "ALL" in step 2 of the procedure outlined on the left, then complete steps 5 and 6 to complete this setting. (There will be instances where it takes time for the peripheral device to collect the copy start- and end-times from the main unit, after "ALL" has been selected.)

- When "A/B" is selected, the start- and end-times selected using the USER SETUP button will be displayed. Refer to page 25 for details on User button settings. Select "A/B" in step 2 of the procedure outlined on the left, then complete steps 5 and 6 to complete this setting.

Limits to the copy range can be established by first using the automatic setting procedure described above to set start-time and end-time, then performing the manual settings on the copy range described on the left.

◆ Automatic adjustments of Copy range

This copying method automatically adjusts copy size to the copy medium's available storage space, using one limit of the Copy range as a fixed point.

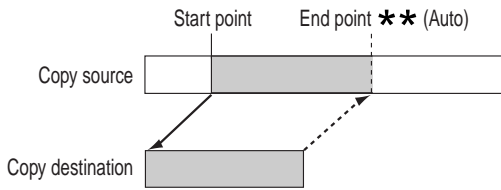
a) Designating start-time

Copy start-time is set manually, then end-time is adjusted automatically according to the copy medium's available storage space.

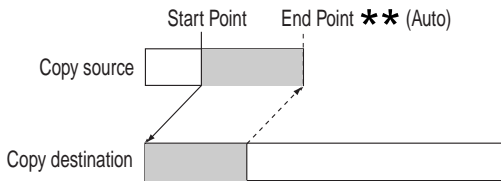
- Designate start-time.
- Set end-time in the (** - ** - ** ** : ** : **)

- When the copy end-point is automatically adjusted, the actual recording proceeds as shown in the following chart.

1) When the amount of data in the copy source is larger than the amount of data in the copy destination.



2) When the amount of data in the copy source is smaller than the amount of data in the copy destination.

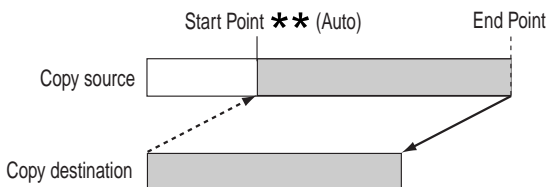


b) Copying the newest copyable data from the hard disk
Copy range is automatically adjusted to the copy medium's available storage space using the end-point of recording on the hard disk.

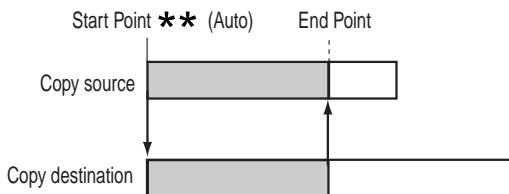
- Set start-time and end-time in the (** - ** - ** ** : ** : **) field.

➡ When the unit is set to copy the newest copyable data from the hard disk, the actual recording proceeds as shown in the following chart.

1) When the amount of data in the copy source is larger than the amount of data in the copy destination.



2) When the amount of data in the copy source is smaller than the amount of data in the copy destination.



◆ Procedure for setting “ ** ”

1. Use steps 1 to 3 from “Manual settings for Copy range” written on the previous page.

```

TRANSFER PERIOD  MAN
▶ FROM: 29-01-01 09:25:24
  TO: 05-02-01 10:22:53
EXECUTE          OFF
    
```

2. Turn the SHUTTLE ring clockwise to select the “Year” field of the Copy start/end-time display, and use the JOG dial to select “ ** ”.

```

TRANSFER PERIOD  MAN
▶ FROM: 28-05-99 12:25:34
  TO: **-**-** **:**:
EXECUTE          OFF

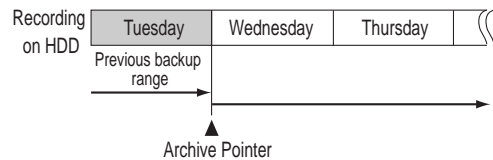
TRANSFER PERIOD  MAN
▶ FROM: **-**-** **:**:
  TO: **-**-** **:**:
EXECUTE          OFF
    
```

- When the start point of a) is specified, “ ** ” is displayed at the Date position of the end-point. When copying using method b), “ ** ” is displayed at the Year position of the start-point. When the Year position of the start point is set to display “ ** ”, the end-time display is automatically set to display “ ** ”.

3. Use steps 5 and 6 from “Manual settings for Copy range” to initiate the Copy function.

■ Backup operation

The unit can be made to record unsaved hard disk data in its archive device each time the ARCHIVE button is pressed. This backup process is conducted as follows:



➡ During Backup operation, backups are created starting with the oldest data stored on the hard disk drive.

➡ The position of the Archive Pointer [Glossary](#) will not be erased when the unit's main power switch is turned off. To cancel the position of the pointer, use the “ARCHIVE POINT RESET” setting in the <INITIAL SET UP> menu. Refer to page 28 for more details.

When the ARCHIVE button is pressed, the unit will use its archive device to make backups of data recorded after the point indicated by the Archive Pointer.

This backup process can also be conducted during recording operation, but please note that the following restrictions apply.

◆ Cancelling Copy operation



The COPY process can be stopped by pressing the WARNING RESET button while the recorder is operating in COPY mode.

• Restrictions during Backup Recording

1. Selectable recording intervals for simultaneous backup

Recording interval for simultaneous backup of recorded data is determined by the data-writing speed of the connected device. For reference, the following chart provides a list of interval modes which can be selected when the unit is used in conjunction with a Hewlett-Packard C1556A drive (DDS3). (The same modes apply when the main hard disk drive has been expanded.)

REC P.GRADE	Field/sec.	25F	12.5F	8.33F	6.25F
SUPERIOR					
HIGH	Non-selectable				
STANDARD					
BASIC					
LOW					

 : Simultaneous backup is possible without audio
 : Simultaneous backup is possible with audio

2. Precautions when designating Timer simultaneous backup

The Backup Program, which can be designated as an individual operation, can also be designated with the RECORD and POWER Programs. The following items apply when designating these multiple program modes.

1) There may be restrictions imposed by the other recording devices, it is recommended that adequate program checks are run before actual operation.

*) Precautions when connecting devices requiring time to halt startup (e.g., archive devices, tape recording devices etc.)

• Using the Backup setting's designated time plus 5 minutes (the halt startup time of the peripheral recording devices) as a gauge, set the unit so that modes do not change. (Refer to illustration 1.)

• Even when only designating the backup mode, add one minute or more to the backup operation time, and set other programs to start and stop. (Refer to Illustration 2.)

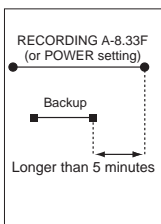


Illustration 1:
Correct setting

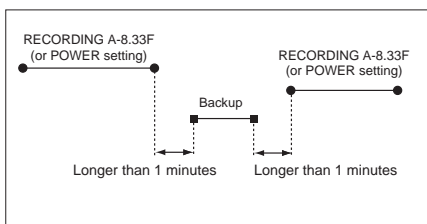


Illustration 2

◆ ARCHIVE button operation

The transfer of data, for backup purposes, from the unit's HDD to a peripheral recording device is performed in fixed data amounts each time. Data transfer begins when 30MB is recorded onto the HDD. Accordingly, even if the ARCHIVE button is lit, there are times when the operation of archive devices are stopped in order to reduce fatigue on these devices. To end the backup, please press the ARCHIVE button one more time as the button remains lit even after the backup process is finished. The ARCHIVE button will start blinking when pressed, and will stop blinking when recorded data has been transferred, thus ending the backup process.

◆ Cancelling Backup operation

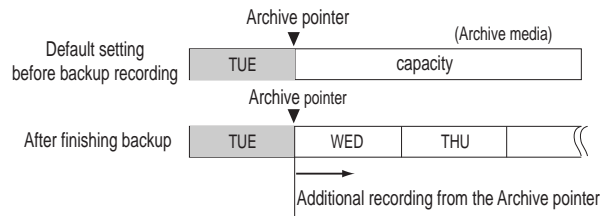
Press the ARCHIVE button during Backup Recording to halt operation. The Archive Pointer will be re-positioned to where operation was stopped, and the next Backup Recording will begin at this point. The unit will halt operation while the ARCHIVE button is blinking; please wait until the button's light stays on.

■ Individual settings during Backup operation

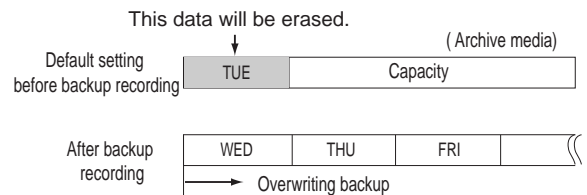
◆ Choosing a backup system

Select either "ON" or "OFF" for the ARCHIVE OVERWRITE setting on the <INITIAL SET UP> menu. The default setting is "OFF". Use the JOG dial and SHUTTLE ring to check that settings are as desired. (Refer to page 29.)

a) "OFF": Data will be added to the storage medium from the point where previous Backup Recording was completed.



b) "ON": Data previously recorded on the storage medium will be over-written and erased.



◆ Auto-eject at the completion of backup

The unit can be set so that the storage medium will be automatically ejected upon completion of Backup process. Refer to page 30 for details on the setting procedure.

Besides this setting, the archive medium will be automatically ejected under the following conditions.

- When the archive medium becomes full during One-touch Backup.
- When the archive medium becomes full during Timer Backup.
- When the ARCHIVE button is pressed once again, after operation has been initiated with the ARCHIVE button.
- When a recording malfunction, medium error, or system error occurs during Backup operation.

■ Timer Backup

Timer Backup is a method for using the timer to perform the one-touch backup described on page 53. The timer can be used to archive data in the main hard disk drive which has not yet been backed up. The unit can archive data even if it is currently in the process of Timer Recording. Please check the settings for backup over-writing. (Refer to page 30 for more details.)

⚠ Make sure to connect the archive device using SCSI ID4.

Example: Use Program #5 in the Timer operational mode P2 to make a backup everyday between 00:00 to 05:00. (All data is backed up in one session.)

1. Press the SET UP button to display the <MENU SETTING> menu.

2. Turn the JOG dial to move the cursor to TIMER PROGRAM.

3. Turn the SHUTTLE ring to the right to display the <TIMER PROGRAM> menu. Check that the cursor is next to SELECTED PATTERN, turn the SHUTTLE ring to the right.

• The sub-item will start flashing.

<TIMER PROGRAM>		P1
SELECTED PATTERN		P1
▶SETTING P1		
SETTING P2		
SETTING P3		

4. Turn the JOG dial to select "P2" and turn the SHUTTLE ring to the right.

<TIMER PROGRAM>		P2
SELECTED PATTERN		P2
▶SETTING P1		
SETTING P2		
SETTING P3		

5. Turn the JOG dial to move the cursor to SETTING P2, then turn the SHUTTLE ring to the right.

• The <TIMER PROGRAM> of P2 appears.

<TIMER PROGRAM>		P2	
DW	START	END	MODE
▶ SAT	19:30	22:30	A- 25F
2 TUE	10:00	11:00	B-12.5F
3 SPL	10:00	17:00	B- 1F

6. Turn the JOG dial to move the cursor to Program #5, then turn the SHUTTLE ring clockwise to move the cursor to the DW column.

- Group the backup program to the largest available program number.
- Use the JOG dial to select "DW" and turn the SHUTTLE ring clockwise to complete this setting.
- Repeating the above procedure, use the JOG dial and SHUTTLE ring to set start time and end time.

<TIMER PROGRAM>		P2	
DW	START	END	MODE
1 SAT	19:30	22:30	A- 25F
2 TUE	10:00	11:00	B-12.5F
3 SPL	10:00	17:00	B- 1F
4 WED	07:00	08:00	B- 1F
▶ DAY	00:00	05:00	ARC

7. When MODE column is flashing, select "ARC" then turn the SHUTTLE ring to the right.

<TIMER PROGRAM>		P2	
DW	START	END	MODE
1 SAT	19:30	22:30	A- 25F
2 TUE	10:00	11:00	B-12.5F
3 SPL	10:00	17:00	B- 1F
4 WED	07:00	08:00	B- 1F
▶ DAY	00:00	05:00	ARC

➡ The start point of the backup is at the position of the Archive Pointer **Glossary**, and its end point is where backup is terminated within the designated time frame. When backup is completed within the designated time frame, the unit saves the Archive Pointer at this position, and will start the next backup at this position.

8. Turn the SHUTTLE ring to the left or press the SET UP button.

• The Timer Backup is grouped as shown in the following illustration.

<TIMER PROGRAM>		P2	
DW	START	END	MODE
1 SAT	19:30	22:30	A- 25F
2 TUE	10:00	11:00	B-12.5F
3 SPL	10:00	17:00	B- 1F
4 WED	07:00	08:00	B- 1F
▶ DAY	00:00	05:00	ARC

➡ A recording operation warning is displayed when hard drive data which has yet to be backed up is about to be over-written. After that, a recording malfunction message will be displayed when that point has been exceeded.

INFORMATION

The unit can be set so that a CALL OUT signal is emitted when the archive medium has run out of storage space. Refer to page 27 for more details on CALL OUT settings.

■ Power failure reset recording

The unit will restart recording after the event of a power failure, even if the unit was running in recording mode prior to the power failure. When running Timer Recording, the unit will restart recording if the power failure ends before the user-specified time frame. An "X" will appear on the right of the monitor's time display for approximately one minute after operation resumes following a power failure.

➡ In the case of a power failure during recording, image quality may be partially degraded and search functions may not operate normally.

■ Power failure time display

The start-times of power failures are recorded when the unit is turning on electricity, and can be confirmed later. (Start times of power failures occurring during backup operation are not recorded.) Refer to page 28 for more details.

Power failure compensation circuit

The unit is equipped with an internal power failure compensation circuit, and, after a full recharge of 48 or more hours, will preserve data and time settings for one month. Timer settings and menu settings will also be preserved. Time settings will not be precise, however, if the circuit has been unplugged for a long period of time. If this situation continues, it is recommended that current time settings are confirmed.

- A maximum of 50 instances of power outage can be displayed.

RESET button

The following conditions occur when the RESET button located on the unit's back panel is pressed (using a ball-point pen or other object): the current time is erased, the system is reset, and main power is turned off. Recorded data and menu settings will not be erased.

Simple lock function

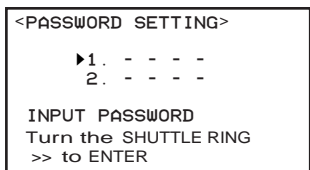
When the LOCK button is pressed (with a ball-point pen, for example), the unit's buttons, JOG dial, and SHUTTLE ring cannot be used, and the unit will remain fixed in its current settings. The Multiplexer button (refer to page 6), however, cannot be used with the LOCK function. Press the LOCK button to cancel this function. The LOCK indicator light will show when the unit is in Lock mode.

PASSWORD LOCK function

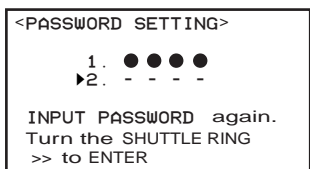
Pressing the LOCK button on the front of the unit will enable you to record a password. Once the password has been entered and the unit has been locked, the functions other than the camera switch will not operate unless the correct password is entered.

Example: Recording the password for the first time.

1. Hold the LOCK key down for at least 5 seconds.
 - The <PASSWORD SETTING> menu will appear.

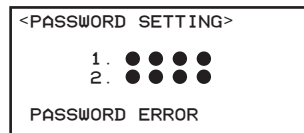


2. Enter the password.
 - Enter a four-digit password.

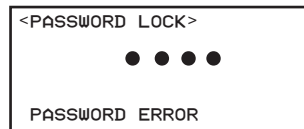


- The password may consist of the numbers from 1 to 9 which are assigned to the camera switch button located on the front of the unit. 0 is assigned to the ZOOM key. (Refer to page 6.)

3. Re-enter the password.
 - "Turn the SHUTTLE RING >> to ENTER" will appear on the screen.
 - If the wrong password is entered, the menu will display the PASSWORD ERROR, and all the "●" will be cleared. Enter the password again.



- The display reading "Turn the SHUTTLE RING >> to ENTER" appears when the menu is displayed. If the password is not entered, turning the SHUTTLE ring to the left will result in an error.
- If a password error occurs, the incorrect password may be cleared using the WARNING RESET key.

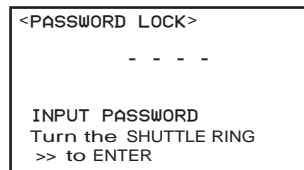


4. Turn the SHUTTLE ring to the right.
 - The password is now set, and the normal operating screen appears.

Example: Turning the PASSWORD LOCK functions on and off.

"OFF": The PASSWORD LOCK functions can be disabled by pressing the LOCK button on the front of the unit and entering the password.

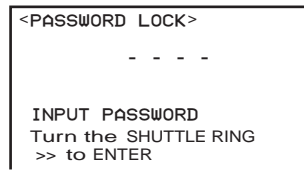
"ON": To return to locked status, press the LOCK button again.



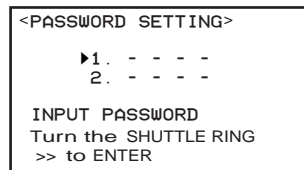
NOTE: Contact the vendor if you forget your password.

Example: Changing passwords.

1. During unlocking, press the LOCK button for five seconds.
 - The <PASSWORD LOCK> menu will appear.



2. Enter the current password.
3. The <PASSWORD SETTING> menu will appear.
 - Using the same procedure for setting the original password, enter and set the new password.



■ RS-232C settings

This setting can be used for remote device control and recording supplementary information when the main unit is connected to a PC.

◆ Transmission speed

Example: Transmission speed is set for 48000 bps.

1. Press the **SET UP** button to display the **<MENU SETTING>** menu.
2. Turn the **JOG** dial to move the cursor to **REAR TERMINAL** then turn the **SHUTTLE** ring to the right.

```

<REAR TERMINAL>
▶MODE OUT          REC
CAPACITY REMAIN HDD-10%

CALL OUT
BUZZER             KEY
RS-232C SETTING
    
```

3. Turn the **JOG** dial to move the cursor to **RS-232C SETTING** and turn the **SHUTTLE** ring to the right.
 - The **<RS-232C SETTING>** menu will appear.

```

CALL OUT
BUZZER             KEY
▶RS-232C SETTING
    
```

4. Check that the cursor is next to **TRANSMISSION RATE** and turn the **SHUTTLE** ring to the right to flash the sub-item.

```

<RS-232C SETTING>
▶TRANSMISSION RATE 1200
DATA BIT LENGTH    8BIT
PARITY BIT         NONE
STOP BIT LENGTH    1BIT
DELIMITER         CR
    
```

5. Turn the **JOG** dial to select "4800" and turn the **SHUTTLE** ring to the right to finish setting.

```

<RS-232C SETTING>
▶TRANSMISSION RATE 4800
DATA BIT LENGTH    8BIT
PARITY BIT         NONE
STOP BIT LENGTH    1BIT
DELIMITER         CR
    
```

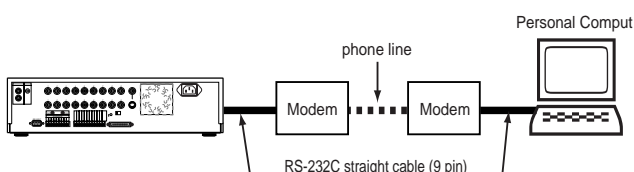
6. Press the **SET UP** button.
 - The **<RS-232C SETTING>** menu will disappear.

■ Connecting with a personal computer

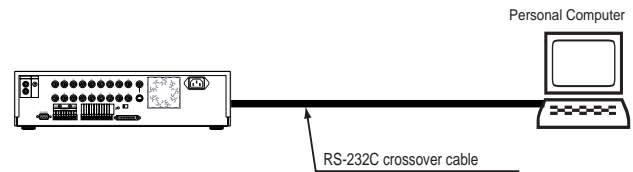
This setting can be used for remote device control and recording supplementary information when the main unit is connected to a PC.

➡ Please use RS-232C Straight cable (9pin) to connect a modem with this unit. The setting of CTS should be set to "HIGH" or "ON". Please refer to the instruction manual of a modem for details about connection.

◆ Connection via modem

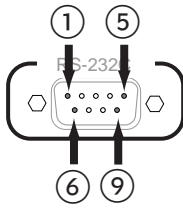


◆ Direct connection



➡ Please use RS-232C crossover cable (9pin) to connect a modem with a personal computer. RS-232C Crossover cable differs depending on the personal computer.

◆ RS-232C terminal

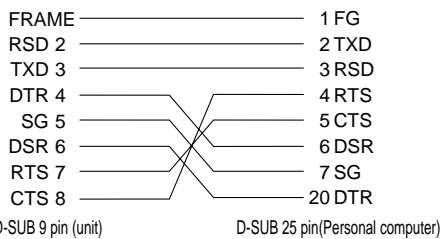


Pin NO.	Letters	Transmission Contents	Pin NO.	Letters	Transmission Contents
②	RSD	Receiving Data	⑥	DSR	Data Set Ready
③	TXD	Transmission Data	⑦	RTS	Transmission Requirement
④	DTR	Data Terminal Ready			
⑤	GND	Signal Ground	⑧	CTS	Transmission Clear

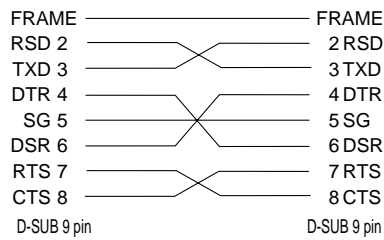
◆ RS-232C cable

Please use the following RS-232C Crossover cable to connect your personal computer to the Unit.

1) When RS-232C terminal of personal computer is D-SUB 25 pin



2) When Personal computers RS-232C terminal is D-SUB 9 pin



◆ Setting the communicating mode

The settings can be made on RS-232C SETTING of the <REAR TERMINAL> menu. Set the Unit and the modem or a personal computer with same settings. Please refer to the diagram for possible setting rate.

Synchronization	Name on Menu	Asynchronous
① Transmission rate at the data received/sent	TRANSMISSION RATE	1200/2400/4800/9600
② Data bit length	DATA BIT LENGTH	8 BIT/7 BIT
③ Parity bit setting	PARITY BIT	NONE/ODD/EVEN
④ Stop bit length	STOP BIT	1 BIT/2 BIT
⑤ Line feed setting	DELIMITER	CR/CR•LF

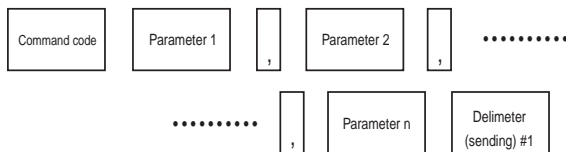
Set other functions on the personal computer as shown below.

Synchronization	Name on Menu
① X control	Not available
② S parameter	Not available
③ CS-RS hand-shake	Available

■ Command code and status

Operation and setting of this unit by a personal computer is executed by command codes and error codes.

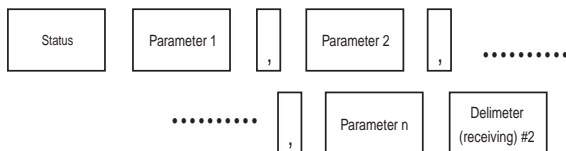
1) Command : an order from a personal computer to the unit



#1: If you set the CR/CR • LF setting to "CR" on the RS-232C setting menu, input a Carriage return code (0DH).
If you set the CR/CR • LF setting to "CR • LF" on the RS-232C setting menu, input a carriage return code (0DH) and a line ****code (0AH).

#2: If you set the CR/CR • LF setting to "CR" on the RS-232C setting menu, output a Carriage return code (0DH).
If you set the CR/CR • LF setting to "CR • LF" on the RS-232C setting menu, output a carriage return code (0DH) and a line ****code (0AH).

2) Command : a reply from the unit (indicated on a personal computer)



Make sure to send commands in an interval of 1 second.

◆ Example of Command operation

Example 1) Turn the Unit on.(when CR/CR•LF is set to "CR" on the RS-232C setting menu)

Command from personal computer	Replied status code from unit to a personal computer	Meaning
PW1 CR		Sending a command to turn the Unit on.
	RC CR	The unit received a comand.
	EX CR	The unit received a comand and executed.

• Details of the numbers

#1 : When the setting of CR/CR•LF on RS-232C setting display is set to CR, carriage return code (0DH) will be input. If the setting is CR•LF, carriage return code (0DH) and line feed code (0AH) will be input.

#2 : When the setting of CR/CR•LF on RS-232C setting display is set to CR, carriage return code (0DH) will be output. If the setting is CR•LF, carriage return code (0DH) and line feed code (0AH) will be output.

★ : Indicates one number or a character.

	Commands	Functions	Status, when normal execute
BASIC FUNCTIONS	PW★ ^[#1]	POWER ON/OFF ★ : 0 ~ 1 0 : OFF 1 : ON	RC ^[#2] EX ^[#2]
	SP ^[#1]	STOP	RC ^[#2] EX ^[#2]
	PB ^[#1]	PLAYBACK	RC ^[#2] EX ^[#2]
	RP ^[#1]	REVERSE PLAYBACK	RC ^[#2] EX ^[#2]
	RC ^[#1]	RECORDING and SHOT RECORDING	RC ^[#2] EX ^[#2]
	PU★ ^[#1]	PAUSE SETTING/RELEASE ★ : 0 ~ 1 0 : ON 1 : OFF	RC ^[#2] EX ^[#2]
	FA ^[#1]	Forward advance	RC ^[#2] EX ^[#2]
	RA ^[#1]	Reverse advance	RC ^[#2] EX ^[#2]
	PF★ ^[#1]	Forward Skip search ★ : Playback speed(1~ 4) [Playback] 1 : Skip 3 fields 2,3 : Skip 5 fields 4 : Skip 1 MByte [STOP] 1 ~ 4 : Skip 2 MByte	RC ^[#2] EX ^[#2]
	PR★ ^[#1]	Reverse Skip search ★ : Playback speed (1 ~ 4) (Refer above for settings)	RC ^[#2] EX ^[#2]
	RW★ ^[#1]	Rewind DDS cassette ★ : 0 ~ 1 0 : ID4 1 : ID5	RC ^[#2] EX ^[#2]
	TR★ ^[#1]	Timer REC ON/OFF ★ : 0 ~ 1 0 : OFF 1 : ON	RC ^[#2] EX ^[#2] (during POWER ON only)
	AV★ ^[#1]	ARCHIVE ON/OFF ★ : 0 ~ 1 0 : OFF 1 : ON	RC ^[#2] EX ^[#2]
	LO★ ^[#1]	LOCK ON/OFF or PASSWORD LOCK ON ★ : 0 ~ 1 0 : LOCK OFF 1 : LOCK ON or PASSWORD LOCK ON	RC ^[#2] EX ^[#2] (ER17 ^[#2] is output if LO0 ^[#1] is input while PASSWORD LOCK is set to ON.)
	LM ^[#1]	Acquire information on status of LOCK or PASSWORD LOCK function	RC ^[#2] LM★ ^[#2] ★ : 0 ~ 1 0 : OFF 1 : ON
	PO? ^[#1]	Acquire information on whether password has been registered for PASSWORD LOCK function	RC ^[#2] PO★ ^[#2] ★ : 0 ~ 1 0 : No password registered 1 : Password registered
	PO★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ^[#1]	PASSWORD LOCK OFF ★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ : Password (0 ~ 9)	RC ^[#2] EX ^[#2] (ER16 ^[#2] : PASSWORD ERROR)
	MB*** ^[#1]	Switch over playback interval to *** : (001 ~ 013) 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F 013 : SHOT	RC ^[#2] EX ^[#2]
	MB? ^[#1]	Acquire information on playback interval	RC ^[#2] MB*** ^[#2] *** : (001 ~ 013) (Same as playback interval shown above)
	FD? ^[#1]	Acquire information on time and date recorded on data	RC ^[#2] FD*** ⁽¹⁾ ,*** ⁽²⁾ ,*** ⁽³⁾ ,*** ⁽⁴⁾ ,*** ⁽⁵⁾ ,*** ⁽⁶⁾ ^[#2] *** ⁽¹⁾ : Day *** ⁽²⁾ : Month *** ⁽³⁾ : Year *** ⁽⁴⁾ : Hour *** ⁽⁵⁾ : Minute *** ⁽⁶⁾ : Second
PS*** ⁽¹⁾ ,*** ⁽²⁾ ^[#1]	Move date and present time display *** ⁽¹⁾ : (Horizontal) (Display mode 1, Character size large : 00 ~ 28) (Display mode 1, Character size small : 00 ~ 28) (Display mode 2 or 3, Character size large : 00 ~ 28) (Display mode 2 or 3, Character size small : 00 ~ 28) *** ⁽²⁾ : (Vertical) (Display mode 1, Character size large : 03 ~ 26) (Display mode 1, Character size small : 03 ~ 26) (Display mode 2 or 3, Character size large : 01 ~ 26) (Display mode 2 or 3, Character size small : 01 ~ 26)	RC ^[#2] EX ^[#2]	

Command codes (continued)

	Commands	Functions	Status, when normal execute
BASIC FUNCTIONS	LC [#1]	Acquire information on current position of date and present time display	RC [#2] LT * * * ⁽¹⁾ , * * * ⁽²⁾ [#2] (Same as * * * ⁽¹⁾ and * * * ⁽²⁾ of Move date and present time display)
	DP00 [#1]	Exits MENU display	RC [#2] EX [#2]
	ST0 [#1]	Stop the selected item on the menu to flash	RC [#2] EX [#2]
	PI [#1]	Acquire information on currently displayed menu and whether the setting is proceeding	RC [#2] ON * * * ⁽¹⁾ , * * * ⁽²⁾ [#2] * * * ⁽¹⁾ : 00 ~ 37 00 : current date and time display 01 : MENU SETTING 02 : DISPLAY 03 : TIMER PROGRAM 04 : RECORDING SET UP 05 : DATA CLEAR SELECTION 06 : REAR TERMINAL 07 : SERVICE 08 : INITIAL SET UP 09 : DEVICE CHECK 10 : POWER FAILURE 11 : ALARM LIST SEARCH 12 : TIME DATE ADJUST 13 : RS-232C SETTING 14 : INFORMATION 15 : REC INTERVAL 16 : COPY SELECTION 17 : SEARCH SELECTION 18 : TIME DATE SEARCH 19 : INDEX SEARCH 20 : SKIP SEARCH 21 : JUMP TO STRAT POINT 22 : MPX FUNCTIONS 23 : CAMERA SETTING 24 : SPLIT SCREEN SETTING 26 : SEQUENTIAL 28 : TIMER PROGRAM P1 29 : TIMER PROGRAM P2 30 : TIMER PROGRAM P3 31 : USER KEY 32 : CALL OUT SETTING 33 : CLOCK LOCATION 36 : PASSWORD SETTING 37 : PASSWORD LOCK * * * ⁽²⁾ : 0 ~ 1 0 : define 1 : menu is flashing
	CP? [#1]	Acquire information on the used memory of device selected in CAPACITY REMAIN	RC [#2] CP * * * ⁽¹⁾ , * * * ⁽²⁾ [#2] * * * ⁽¹⁾ : selection of used memory (0 ~ 2) 0 : HDD 1 : ARCHIVE 2 : OFF * * * ⁽²⁾ : used memory (001 ~ 100 (%)) (FFF is shown when used memory is less than 1% or WRNG is set to OFF.)
	PA? [#1]	Acquire information whether time and date information recorded in playback picture is alarm recording	RC [#2] PA * [#2] * : 0 ~ 1 0 : without alarm 1 : with alarm
	PD * [#1]	PB DEVICE setting * : 0 ~ 2 0 : HDD 1 : ARCHIVE 2 : COPY	RC [#2] EX [#2]
	PD? [#1]	Acquire information on PB DEVICE setting	RC [#2] PD * [#2] * : 0 ~ 2 0 : HDD 1 : ARCHIVE 2 : COPY
	EJ * [#1]	Ejecting media out of DEVICE * : 1 ~ 2 1 : ARCHIVE 2 : COPY	RC [#2] EX [#2]
	DISPLAY MENU	DM * [#1]	DISPLAY MODE setting * : 1 ~ 6
DM? [#1]		Acquire information on DISPLAY MODE setting	RC [#2] DM * [#2] * : 1 ~ 6
CH * [#1]		Character size setting present time and display * : 0 ~ 1 0 : SMALL 1 : LARGE	RC [#2] EX [#2]
FS1 [#1]		Acquire information on character size setting for present time and date display	RC [#2] CZ * [#2] * : 0 ~ 1 0 : SMALL 1 : LARGE

	Commands	Functions	Status, when normal execute
MPX FUNCTIONS	CU★ <u>#1</u>	CAMERA USAGE setting ★ : 0 ~ 2 0 : A 1 : B 2 : C	RC <u>#2</u> EX <u>#2</u>
	CU? <u>#1</u>	Acquire information on CAMERA USAGE setting	RC <u>#2</u> CU★ <u>#2</u> ★ : 0 ~ 2 0 : A 1 : B 2 : C
	SG★ <u>#1</u>	SPLIT P.GRADE setting ★ : 0 ~ 1 0 : SHARP 1 : SOFT	RC <u>#2</u> EX <u>#2</u>
	SG? <u>#1</u>	Acquire information on SPLIT P.GRADE setting	RC <u>#2</u> SG★ <u>#2</u> ★ : 0 ~ 1 0 : SHARP 1 : SOFT
	CS★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ , ★ ⁽⁵⁾ ,★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ , ★ ⁽¹⁰⁾ <u>#1</u>	CAMERA SETTING ★ ⁽¹⁾ : Pattern selection (0 ~ 2) 0 : A 1 : B 2 : C ★ ^{(2) ~ ★⁽¹⁰⁾ : Status of CH1 to CH9 (0 ~ 1) 0 : invalid 1 : valid}	RC <u>#2</u> EX <u>#2</u>
	CS★ ⁽¹⁾ ? <u>#1</u>	Acquire information on CAMERA SETTING ★ ⁽¹⁾ : Pattern selection (0 ~ 2) 0 : A 1 : B 2 : C	RC <u>#2</u> CS★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ ,★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ ,★ ⁽¹⁰⁾ <u>#2</u> ★ ⁽¹⁾ : Pattern selection (0 ~ 2) 0 : A 1 : B 2 : C ★ ^{(2) ~ ★⁽¹⁰⁾ : Status of CH1 to CH9 (0 ~ 1) 0 : invalid 1 : valid}
	CT★ ⁽¹⁾ ,★★ ⁽²⁾ , Text data <u>#1</u>	CH. TITLE setting ★ ⁽¹⁾ : Camera CH (1 ~ 9) ★★ ⁽²⁾ : Text data (Within 16 characters. Table of available characters are shown in page 70, "Characters can be used".)	RC <u>#2</u> EX <u>#2</u>
	CT★ ⁽¹⁾ ? <u>#1</u>	Acquire information on CH. TITLE setting ★ ⁽¹⁾ : Camera CH (1 ~ 9)	RC <u>#2</u> CT★ ⁽¹⁾ ,★★ ⁽²⁾ ,Text data <u>#2</u> ★ ⁽¹⁾ : Camera CH (1 ~ 9) ★★ ⁽²⁾ : Text data
	SL★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ , ★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ ,★ ⁽¹⁰⁾ <u>#1</u> Split9 Split4 ★ ⁽²⁾ ★ ⁽³⁾ ★ ⁽⁴⁾ ★ ⁽²⁾ ★ ⁽³⁾ ★ ⁽⁵⁾ ★ ⁽⁶⁾ ★ ⁽⁷⁾ ★ ⁽⁴⁾ ★ ⁽⁵⁾ ★ ⁽⁸⁾ ★ ⁽⁹⁾ ★ ⁽¹⁰⁾	SPLIT SCREEN SETTING ★ ⁽¹⁾ : Screen setting (0 ~ 3) 0 : SPLIT9 1 : SPLIT4a 2 : SPLIT4b 3 : SPLIT4c ★ ^{(2) ~ ★⁽¹⁰⁾ : Camera CH position (1 ~ 9) (When ★⁽¹⁾ is set to 0, input data to ★^{(2) ~ ★⁽¹⁰⁾. When ★⁽¹⁾ is set to 1, 2 or 3, input data to ★^(2) ~ ★⁽⁵⁾.)}}	RC <u>#2</u> EX <u>#2</u>
	SL★ ⁽¹⁾ ? <u>#1</u>	Acquire information on SPLIT SCREEN SETTING ★ ⁽¹⁾ : Screen setting (0 ~ 3) 0 : SPLIT9 1 : SPLIT4a 2 : SPLIT4b 3 : SPLIT4c	RC <u>#2</u> SL★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ ,★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ ,★ ⁽¹⁰⁾ <u>#2</u> ★ ⁽¹⁾ : Screen setting (0 ~ 3) 0 : SPLIT9 1 : SPLIT4a 2 : SPLIT4b 3 : SPLIT4c ★ ^{(2) ~ ★⁽¹⁰⁾ : Camera CH position (1 ~ 9) (When ★⁽¹⁾ is set to 0, ★^{(2) ~ ★⁽¹⁰⁾ is output. When ★⁽¹⁾ is set to 1, 2 or 3, ★^(2) ~ ★⁽⁵⁾ is output.)}}
	SQ★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ , ★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ ,★ ⁽¹⁰⁾ <u>#1</u>	Displayed sequential channel setting ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen ★ ^{(2) ~ ★⁽¹⁰⁾ : Camera CH order (1 ~ 9, 0) (0 = invalid camera) SPLIT4 ★⁽²⁾ : 0 ~ 1 0 : abc setting 1 : ab setting}	RC <u>#2</u> EX <u>#2</u>
	SM★ ⁽¹⁾ ,★★ ⁽²⁾ ,★★ ⁽³⁾ , ★★ ⁽⁴⁾ ,★★ ⁽⁵⁾ ,★★ ⁽⁶⁾ ,★★ ⁽⁷⁾ , ★★ ⁽⁸⁾ ,★★ ⁽⁹⁾ ,★★ ⁽¹⁰⁾ <u>#1</u>	Displayed time of sequential channel setting ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen ★★ ^{(2) ~ ★★⁽¹⁰⁾ : Displayed time of each camera (01 ~ 30) (When SPLIT4 screen is selected, set ★★⁽²⁾ only)}	RC <u>#2</u> EX <u>#2</u>
	SQ★ ⁽¹⁾ ? <u>#1</u>	Acquire information on displayed sequential channel setting ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen	RC <u>#2</u> SQ★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ ,★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ ,★ ⁽¹⁰⁾ <u>#2</u> ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen ★ ^{(2) ~ ★⁽¹⁰⁾ : Camera CH order (1 ~ 9, 0) (0 = invalid camera) SPLIT4 ★⁽²⁾ : 0 ~ 1 0 : abc setting 1 : ab setting}
SM★ ⁽¹⁾ ? <u>#1</u>	Acquire information on displayed time of sequential channel setting ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen	RC <u>#2</u> SM★ ⁽¹⁾ ,★★ ⁽²⁾ ,★★ ⁽³⁾ ,★★ ⁽⁴⁾ ,★★ ⁽⁵⁾ ,★★ ⁽⁶⁾ ,★★ ⁽⁷⁾ ,★★ ⁽⁸⁾ , ★★ ⁽⁹⁾ ,★★ ⁽¹⁰⁾ <u>#2</u> ★ ⁽¹⁾ : Screen setting (0 ~ 1) 0 : Single screen 1 : SPLIT4 screen ★★ ^{(2) ~ ★★⁽¹⁰⁾ : Displayed time of each camera (01 ~ 30) (When SPLIT4 screen is selected, only ★★⁽²⁾ is output.)}	

Command codes (continued)

	Commands	Functions	Status, when normal execute
MPX FUNCTIONS	AC* #1	ALARM REC CH. setting * : 0 ~ 1 0 : ALL 1 : SEP.	RC #2 EX #2
	AC? #1	Acquire information on ALARM REC CH. setting	RC #2 AC* #2 * : 0 ~ 1 0 : ALL 1 : SEP.
	CI* #1	CH. TITLE setting * : 0 ~ 2 0 : TITLE 1 : CH. NO 2 : NONE	RC #2 EX #2
	CI? #1	Acquire information on CH. TITLE setting	RC #2 CI* #2 * : 0 ~ 2 0 : TITLE 1 : CH. NO 2 : NONE
	SW** #1	Multiplexer screen switch setting ** : 00 ~ 05 , 80 ~ 88 00 : SPLIT9 01 : SPLIT4a 02 : SPLIT4b 03 : SPLIT4c 04 : Single screen sequential 05 : SPLIT4 screen sequential 80 ~ 88 : CH1 ~ CH9 (Single screen display)	RC #2 EX #2
	SW? #1	Acquire information on Multiplexer screen switch setting	RC #2 SW** #2 ** : 00 ~ 05 , 80 ~ 88 00 : SPLIT9 01 : SPLIT4a 02 : SPLIT4b 03 : SPLIT4c 04 : Single screen sequential 05 : SPLIT4 screen sequential 80 ~ 88 : CH1 ~ CH9 (Single screen display)
TIMER PROGRAM	PG* ⁽¹⁾ , * ⁽²⁾ , * ⁽³⁾ , ** ⁽⁴⁾ , ** ⁽⁵⁾ , ** ⁽⁶⁾ , ** ⁽⁷⁾ , * ⁽⁸⁾ , *** ⁽⁹⁾ #1	Timer program setting * ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 * ⁽²⁾ : Program number(1 ~ 8) * ⁽³⁾ : Day of the week (0 ~ 8) 0 : SUN 1 : MON 2 : TUE 3 : WED 4 : THU 5 : FRI 6 : SAT 7 : DAY 8 : SPL ** ⁽⁴⁾ : Rec starting hour (00 ~ 23) ** ⁽⁵⁾ : Rec starting minute (00 ~ 59) ** ⁽⁶⁾ : Rec ending hour (00 ~ 23) ** ⁽⁷⁾ : Rec ending minute (00 ~ 59) * ⁽⁸⁾ : CAMERA USAGE pattern (0 ~ 2) 0 : A 1 : B 2 : C *** ⁽⁹⁾ : Recording interval (001 ~ 013, SKP, PWR, ARC) 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F 013 : SHOT SKP : SKIP PWR : POWER ARC : ARCHIVE (When SKP, PWR or ARC is selected, set * ⁽⁸⁾ to 0, 1, or 2)	RC #2 EX #2
	DW* ⁽¹⁾ , * ⁽²⁾ , * ⁽³⁾ #1	SPECIAL DW setting * ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 * ⁽²⁾ : Start day of the week (0 : SUN ~ 6 : SAT) * ⁽³⁾ : End day of the week (0 : SUN ~ 6 : SAT)	RC #2 EX #2
	DW?* #1	Acquire information on SPECIAL DW setting * ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3	RC #2 DW* ⁽¹⁾ , * ⁽²⁾ , * ⁽³⁾ #2 * ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 * ⁽²⁾ : Start day of the week (0 : SUN ~ 6 : SAT) * ⁽³⁾ : End day of the week (0 : SUN ~ 6 : SAT)

	Commands	Functions	Status, when normal execute
TIMER PROGRAM	CA★ ⁽¹⁾ ,★ ⁽²⁾ _{#1}	Clearing timer program ★ ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 ★ ⁽²⁾ : Program number(1 ~ 8)	RC _{#2} EX _{#2}
	PM★ ⁽¹⁾ ,★ ⁽²⁾ _{#1}	Acquire information on timer program setting ★ ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 ★ ⁽²⁾ : Program number(1 ~ 8)	RC _{#2} MP★ ⁽¹⁾ ,★ ⁽²⁾ ,★ ⁽³⁾ ,★ ⁽⁴⁾ ,★ ⁽⁵⁾ ,★ ⁽⁶⁾ ,★ ⁽⁷⁾ ,★ ⁽⁸⁾ ,★ ⁽⁹⁾ _{#2} ★ ⁽¹⁾ : SELECTED PATTERN (1 ~ 3) 1 : P1 2 : P2 3 : P3 ★ ⁽²⁾ : Program number(1 ~ 8) ★ ⁽³⁾ : Day of the week (0 ~ 8, -) 0 : SUN 1 : MON 2 : TUE 3 : WED 4 : THU 5 : FRI 6 : SAT 7 : DAY 8 : SPL ★ ⁽⁴⁾ : Rec starting hour (00 ~ 23, - -) ★ ⁽⁵⁾ : Rec starting minute (00 ~ 59, - -) ★ ⁽⁶⁾ : Rec ending hour (00 ~ 23, - -) ★ ⁽⁷⁾ : Rec ending minute (00 ~ 59, - -) ★ ⁽⁸⁾ : CAMERA USAGE (0 ~ 2, -) 0 : A 1 : B 2 : C ★ ⁽⁹⁾ : Recording interval (001 ~ 013, SKP, PWR, ARC, - - -) 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F 013 : SHOT SKP : SKIP PWR : POWER ARC : ARCHIVE (-, -, - - - is output on ★ ⁽³⁾ ~ ★ ⁽⁹⁾ when no program is set)
	PP★ _{#1}	SELECTED PATTERN setting ★ : 1 ~ 3 1 : P1 2 : P2 3 : P3	RC _{#2} EX _{#2}
	PP? _{#1}	Acquire information on SELECTED PATTERN setting	RC _{#2} PP★ _{#2} ★ : 1 ~ 3 1 : P1 2 : P2 3 : P3
RECORDING SET UP	MC*** _{#1}	REC interval setting *** : REC MODE (001 ~ 013) 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F 013 : SHOT (During stop)	RC _{#2} EX _{#2}
	MD _{#1}	Acquire information on REC interval setting	RC _{#2} MD*** _{#2} *** : REC MODE (001 ~ 013) 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F 013 : SHOT
	QR★ _{#1}	Recording Picture Grade (REC P. GRADE) ★ : 1 ~ 5 1 : LOW 2 : BASIC 3 : STANDARD 4 : HIGH 5 : SUPERIOR	RC _{#2} EX _{#2}
	QR? _{#1}	Acquire information on Recording Picture Grade	RC _{#2} QR★ _{#2} ★ : 1 ~ 5 1 : LOW 2 : BASIC 3 : STANDARD 4 : HIGH 5 : SUPERIOR
	AM*** _{#1}	Alarm REC interval setting ** : 01 ~ 012 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F	RC _{#2} EX _{#2}

Command codes (continued)

	Commands	Functions	Status, when normal execute
RECORDING SET UP	AS1 [#1]	Acquire information on Alarm REC interval setting	RC [#2]AM**[#2] ** : 01 ~ 012 001 : 25F 002 : 12.5F 003 : 8.33F 004 : 6.25F 005 : 4.17F 006 : 2.78F 007 : 2.08F 008 : 1.56F 009 : 1F 010 : 0.5F 011 : 0.25F 012 : 0.13F
	AD* [#1]	Alarm REC duration setting * : 1 ~ 8 1 : MAN 2 : 15S 3 : 30S 4 : 45S 5 : 1M 6 : 2M 7 : 5M 8 : 10M	RC [#2]EX [#2]
	AS0 [#1]	Acquire information on Alarm REC duration setting	RC [#2]AP* [#2] * : 1 ~ 8 1 : MAN 2 : 15S 3 : 30S 4 : 45S 5 : 1M 6 : 2M 7 : 5M 8 : 10M
	QA* [#1]	Alarm Recording Picture Grade (A - REC P. GRADE) * : 1 ~ 5 1 : LOW 2 : BASIC 3 : STANDARD 4 : HIGH 5 : SUPERIOR	RC [#2]EX [#2]
	QA? [#1]	Enquiry about Alarm Recording Picture Grade setting	RC [#2]QA* [#2] * : 1 ~ 5 1 : LOW 2 : BASIC 3 : STANDARD 4 : HIGH 5 : SUPERIOR
	AL* [#1]	Pre-Alarm Recording setting * : 0 ~ 3 0 : OFF 1 : SHORT 2 : MIDDLE 3 : LONG (1 ~ 3 available in STOP mode)	RC [#2]EX [#2]
	AL? [#1]	Acquire information on Pre-Alarm Recording setting	RC [#2]AL* [#2] * : 0 ~ 3 0 : OFF 1 : SHORT 2 : MIDDLE 3 : LONG
	OS** [#1]	ONE SHOT FIELD setting ** : 01, 02, 03, 04, 05, 10, 20, 30	RC [#2]EX [#2]
	OF [#1]	Acquire information on ONE SHOT FIELD setting	RC [#2]SD**[#2] ** : 01, 02, 03, 04, 05, 10, 20, 30
	OI* [#1]	ONE SHOT INTERVAL setting * : 0 ~ 7 0 : SHOT 1 : 15S 2 : 30S 3 : 45S 4 : 1M 5 : 2M 6 : 3M 7 : 5M	RC [#2]EX [#2]
	OI? [#1]	Acquire information on ONE SHOT INTERVAL setting	RC [#2]OI* [#2] * : 0 ~ 7 0 : SHOT 1 : 15S 2 : 30S 3 : 45S 4 : 1M 5 : 2M 6 : 3M 7 : 5M
	AR* [#1]	AUDIO RECORDING setting * : 0 ~ 1 0 : OFF 1 : ON	RC [#2]EX [#2]
	AR? [#1]	Acquire information on AUDIO RECORDING setting	RC [#2]AR* [#2] * : 0 ~ 1 0 : OFF 1 : ON
	ES? [#1]	Acquire information on ESTD (estimated) TIME	RC [#2]ES****(1),***(2) [#2] ****(1) : Hour ***(2) : Minute
DATA CLEAR SELECTION	DI* [#1]	Initializing data * : 0 ~ 2 0 : HDD 1 : ARCHIVE 2 : COPY	RC [#2]EX [#2]
REAR TERMINAL	MO* [#1]	MODE OUT setting * : 0 ~ 3 0 : REC 1 : PLAY 2 : POWER 3 : REMAIN	RC [#2]EX [#2]
	RM [#1]	Acquire information on MODE OUT setting	RC [#2]MR* [#2] * : 0 ~ 3 0 : REC 1 : PLAY 2 : POWER 3 : REMAIN

	Commands	Functions	Status, when normal execute
REAR TERMINAL	CL* ⁽¹⁾ ,** ⁽²⁾ [#1]	CALL OUT setting * ⁽¹⁾ : 0 ~ 1 0 : HDD 1 : ARCHIVE ** ⁽²⁾ : 00 ~ 11 00 : NONE 01 : FULL 02 : 2% 03 : 4% 04 : 6% 05 : 8% 06 : 10% 07 : 15% 08 : 20% 09 : 30% 10 : 40% 11 : 50%	RC [#2] EX [#2]
	CL? * [#1]	Acquire information on CALL OUT setting * ⁽¹⁾ : 0 ~ 1 0 : HDD 1 : ARCHIVE	RC [#2] CL* ⁽¹⁾ ,** ⁽²⁾ [#2] * ⁽¹⁾ : 0 ~ 1 0 : HDD 1 : ARCHIVE ** ⁽²⁾ : 00 ~ 11 00 : NONE 01 : FULL 02 : 2% 03 : 4% 04 : 6% 05 : 8% 06 : 10% 07 : 15% 08 : 20% 09 : 30% 10 : 40% 11 : 50%
	RT* ⁽¹⁾ ,** ⁽²⁾ [#1]	CAPACITY REMAIN setting * ⁽¹⁾ : 0 ~ 2 0 : HDD 1 : ARC 2 : NONE ** ⁽²⁾ : 02, 04, 06, 08, 10, 15, 20, 30, 40, 50 (When * ⁽¹⁾ is set to 2, it is not necessary to input ** ⁽²⁾)	RC [#2] EX [#2]
	RT? [#1]	Acquire information on CAPACITY REMAIN setting	RC [#2] RT* ⁽¹⁾ ,** ⁽²⁾ [#2] * ⁽¹⁾ : 0 ~ 2 0 : HDD 1 : ARC 2 : NONE ** ⁽²⁾ : 02, 04, 06, 08, 10, 15, 20, 30, 40, 50 (When * ⁽¹⁾ is set to 2, ** ⁽²⁾ is not output)
	BZ* [#1]	BUZZER setting * ⁽¹⁾ : 0 ~ 3 0 : KEY 1 : WRNG 2 : REMAIN 3 : OFF	RC [#2] EX [#2]
	FS2 [#1]	Acquire information on BUZZER setting	RC [#2] BZ* [#2] * ⁽¹⁾ : 0 ~ 3 0 : KEY 1 : WRNG 2 : REMAIN 3 : OFF
SERVICE	PN [#1]	Acquire current power failure number	RC [#2] PN** [#2] ** : power failure number (01 ~ 50, 00) (00 is shown when no power failure occurs)
	PT** [#1]	Acquire information on power failure list ** : power failure number (01 ~ 50)	RC [#2] PT** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ ,** ⁽⁴⁾ ,** ⁽⁵⁾ [#2] ** ⁽¹⁾ : Day ** ⁽²⁾ : Month ** ⁽³⁾ : Year ** ⁽⁴⁾ : Hour ** ⁽⁵⁾ : Minute (ER08 [#2] is output when no power failure occurs)
	PC [#1]	Clearing POWER FAILURE list	RC [#2] EX [#2]
	MI [#1]	Initialization of the menu (available in MAIN MENU) (Refer to "Initializing menus" on page 29 for all initialized menu. RS-232C setting menu is also initialized when executed.)	RC [#2] EX [#2]
	HM? [#1]	Acquire information on MAIN HDD ELAPSED TIME setting	RC [#2] HM***** [#2] ** : elapsed time (000000 ~ 999999)
	DH? [#1]	Acquire information on COPY ELAPSED TIME setting	RC [#2] DH***** [#2] ** : COPY elapsed time (000000 ~ 999999)
	AM? [#1]	Acquire information on ARCHIVE ELAPSED TIME setting	RC [#2] AM***** [#2] ** : ARCHIVE elapsed time (000000 ~ 999999)
	DA* [#1]	Force playback setting (The media can be played back when the data is corrupted due to power failure) * : 0 ~ 1 0 : OFF 1 : ON	RC [#2] EX [#2]
	DA? [#1]	Acquire information on force playback setting	RC [#2] DA* [#2] * : 0 ~ 1 0 : OFF 1 : ON
INITIAL SET UP	SD** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ [#1]	Current date setting ** ⁽¹⁾ : Day ** ⁽²⁾ : Month ** ⁽³⁾ : Year (99,00 ~ 29)	RC [#2] EX [#2]
	DT [#1]	Acquire information on current date setting	RC [#2] TD** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ ,* ⁽⁴⁾ [#2] ** ⁽¹⁾ : Day ** ⁽²⁾ : Month ** ⁽³⁾ : Year (99,00 ~ 29) * ⁽⁴⁾ : Day of the week (0 ~ 6) 0 : SUN ~ 6 : SAT
	SC** ⁽¹⁾ ,** ⁽²⁾ [#1]	Current time setting ** ⁽¹⁾ : Hour ** ⁽²⁾ : Minute	RC [#2] EX [#2]
	TM [#1]	Acquire information on current time setting	RC [#2] TI** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ [#2] ** ⁽¹⁾ : Hour ** ⁽²⁾ : Minute ** ⁽³⁾ : Second

Command codes (continued)

	Commands	Functions	Status, when normal execute
INITIAL SET UP	DF* ^[#1]	HDD FULL setting * : 0 ~ 3 0 : STOP 1 : REC•STANDBY 2 : REPEAT 3 : ALARM•PROT	RC ^[#2] EX ^[#2]
	FS0 ^[#1]	Acquire information on HDD FULL setting	RC ^[#2] TE* ^[#2] * ⁽¹⁾ : 0 ~ 3 0 : STOP 1 : REC•STANDBY 2 : REPEAT 3 : ALARM•PROT
	DE* ^[#1]	AUTO EJECT setting * : 0 ~ 1 0 : ON 1 : OFF	RC ^[#2] EX ^[#2]
	DE? ^[#1]	Acquire information on AUTO EJECT setting	RC ^[#2] DE* ^[#2] * : 0 ~ 1 0 : ON 1 : OFF
	RD* ^[#1]	ARCHIVE DATA setting * : 1 ~ 2 1 : ALL 2 : ALARM	RC ^[#2] EX ^[#2]
	RD? ^[#1]	Acquire information on ARCHIVE DATA setting	RC ^[#2] RD* ^[#2] * : 1 ~ 2 1 : ALL 2 : ALARM
	HP* ^[#1]	HDD PB REPEAT setting * : 0 ~ 1 0 : STOP 1 : REPEAT	RC ^[#2] EX ^[#2]
	HP? ^[#1]	Acquire information on HDD PB REPEAT setting	RC ^[#2] HP* ^[#2] * : 0 ~ 1 0 : STOP 1 : REPEAT
	AW* ^[#1]	ARCHIVE OVERWRITE setting * : 0 ~ 1 0 : OFF 1 : ON	RC ^[#2] EX ^[#2]
AW? ^[#1]	Acquire information on ARCHIVE OVERWRITE setting	RC ^[#2] AW* ^[#2] * : 0 ~ 1 0 : OFF 1 : ON	
INFORMATION	HE? ^[#1]	Acquire information on RECORDED PERIOD of HDD	RC ^[#2] HE** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ ,** ⁽⁴⁾ ,** ⁽⁵⁾ ,** ⁽⁶⁾ ,** ⁽⁷⁾ ,** ⁽⁸⁾ ,** ⁽⁹⁾ ,** ⁽¹⁰⁾ ,** ⁽¹¹⁾ ,** ⁽¹²⁾ ^[#2] ** ⁽¹⁾ : Start Day ** ⁽²⁾ : Start Month ** ⁽³⁾ : Start Year ** ⁽⁴⁾ : Start Hour ** ⁽⁵⁾ : Start Minute ** ⁽⁶⁾ : Start Second ** ⁽⁷⁾ : End Day ** ⁽⁸⁾ : End Month ** ⁽⁹⁾ : End Year ** ⁽¹⁰⁾ : End Hour ** ⁽¹¹⁾ : End Minute ** ⁽¹²⁾ : End Second When no recording : RC ^[#2] HE FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF ^[#2]
	AE? ^[#1]	Acquire information on RECORDED PERIOD of COPY DEVICE	RC ^[#2] AE** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ ,** ⁽⁴⁾ ,** ⁽⁵⁾ ,** ⁽⁶⁾ ,** ⁽⁷⁾ ,** ⁽⁸⁾ ,** ⁽⁹⁾ ,** ⁽¹⁰⁾ ,** ⁽¹¹⁾ ,** ⁽¹²⁾ ^[#2] ** ⁽¹⁾ : Start Day ** ⁽²⁾ : Start Month ** ⁽³⁾ : Start Year ** ⁽⁴⁾ : Start Hour ** ⁽⁵⁾ : Start Minute ** ⁽⁶⁾ : Start Second ** ⁽⁷⁾ : End Day ** ⁽⁸⁾ : End Month ** ⁽⁹⁾ : End Year ** ⁽¹⁰⁾ : End Hour ** ⁽¹¹⁾ : End Minute ** ⁽¹²⁾ : End Second When no recording : RC ^[#2] AE FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF ^[#2]
	RJ? ^[#1]	Acquire information on RECORDED PERIOD of ARCHIVE DEVICE	RC ^[#2] RJ** ⁽¹⁾ ,** ⁽²⁾ ,** ⁽³⁾ ,** ⁽⁴⁾ ,** ⁽⁵⁾ ,** ⁽⁶⁾ ,** ⁽⁷⁾ ,** ⁽⁸⁾ ,** ⁽⁹⁾ ,** ⁽¹⁰⁾ ,** ⁽¹¹⁾ ,** ⁽¹²⁾ ^[#2] ** ⁽¹⁾ : Start Day ** ⁽²⁾ : Start Month ** ⁽³⁾ : Start Year ** ⁽⁴⁾ : Start Hour ** ⁽⁵⁾ : Start Minute ** ⁽⁶⁾ : Start Second ** ⁽⁷⁾ : End Day ** ⁽⁸⁾ : End Month ** ⁽⁹⁾ : End Year ** ⁽¹⁰⁾ : End Hour ** ⁽¹¹⁾ : End Minute ** ⁽¹²⁾ : End Second When no recording : RC ^[#2] RJ FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF, FF ^[#2]
	DV? ^[#1]	Acquire information on ID number of CONNECTED SCSI DEVICE	RC ^[#2] DV* ⁽¹⁾ ,** ⁽²⁾ ,* ⁽³⁾ ,** ⁽⁴⁾ ,** ⁽⁵⁾ ,** ⁽⁶⁾ ,* ⁽⁷⁾ ,** ⁽⁸⁾ ,* ⁽⁹⁾ ,** ⁽¹⁰⁾ ,* ⁽¹¹⁾ ,** ⁽¹²⁾ ^[#2] ID0 * ⁽¹⁾ : Type of DEVICE ** ⁽²⁾ : Capacity ID1 * ⁽³⁾ : Type of DEVICE ** ⁽⁴⁾ : Capacity ID2 * ⁽⁵⁾ : Type of DEVICE ** ⁽⁶⁾ : Capacity ID3 * ⁽⁷⁾ : Type of DEVICE ** ⁽⁸⁾ : Capacity ID4 * ⁽⁹⁾ : Type of DEVICE ** ⁽¹⁰⁾ : Capacity ID5 * ⁽¹¹⁾ : Type of DEVICE ** ⁽¹²⁾ : Capacity * ⁽¹⁾ ,* ⁽³⁾ ,** ⁽⁵⁾ ,* ⁽⁷⁾ ,* ⁽⁹⁾ ,* ⁽¹¹⁾ : 0 ~ 3 0 : NONE 1 : HDD 2 : RDD 3 : DDS ** ⁽²⁾ ,** ⁽⁴⁾ ,** ⁽⁶⁾ ,** ⁽⁸⁾ ,** ⁽¹⁰⁾ ,** ⁽¹²⁾ : 00 ~ 34 (GB) (Capacity shown next to unused ID number, and Capacity of archive device and copy device is output as FF.)

	Commands	Functions	Status, when normal execute
COPY SELECTION	DB*(1),(2),(3), *(4),(5),(6), *(7),(8),(9), *(10),(11),(12), *(13) #1	Setting and executing COPY/RESTORE *(1) : 0 ~ 3 0 : HDD → COPY (COPY, OVERWRITE) 1 : HDD → COPY (COPY, ADD) 2 : ARC → HDD (RESTORE, OVERWRITE) 3 : COPY → HDD (RESTORE, OVERWRITE) *(2) : Start Day *(3) : Start Month *(4) : Start Year *(5) : Start Hour *(6) : Start Minute *(7) : Start Second *(8) : End Day *(9) : End Month *(10) : End Year *(11) : End Hour *(12) : End Minute *(13) : End Second <Copy up to the maximum capacity of media> 31, 12, 99, 10, 10, 10 (Start time) FF, FF, FF, FF, FF, FF (End time) <Copy new data to media up to its maximum capacity> FF, FF, FF, FF, FF, F1 (Start time) FF, FF, FF, FF, FF, F1 (End time)	RC #2 EX #2
SEARCH SELECTION	TF*(1),(2),(3), *(4),(5),(6) #1	TIME DATE SEARCH setting *(1) : Day *(2) : Month *(3) : Year *(4) : Hour *(5) : Minute *(6) : Second	RC #2 EX2 #2 (given when search is completed)
	IF*** #1	INDEX SEARCH (forward) setting *** : 001 ~ 099	RC #2 EX1 #2 (given when search is completed)
	IR*** #1	INDEX SEARCH (reverse) setting *** : 001 ~ 099	RC #2 EX1 #2 (given when search is completed)
	SF #1	SKIP SEARCH (forward)	RC #2 EX #2
	SR #1	SKIP SEARCH (reverse)	RC #2 EX #2
	AN #1	Acquire a current alarm recording number	RC #2 AN***** #2 ***** : 0001 ~ 9999
	AT*** #1	Acquire information on selected alarm recording *** : *** th alarm information on alarm list (001 ~ 500)	RC #2 AT*(1),(2),(3),(4),(5),(6),(7) #2 *(1) : Day *(2) : Month *(3) : Year*(4) : Hour *(5) : Minute *(6) : Second *(7) : Camera number (1 ~ 9)
	AQ? #1	Acquire a current alarm recording registration number	RC #2 AQ*** #2 *** : 001 ~ 500
	AO?*** #1	Acquire alarm number that selected alarm recording registration number *** : 001 ~ 500	RC #2 AO*** #2 *** : 0001 ~ 9999
	AB*** #1	Searching alarm list that selected alarm recording registration number *** : 1 ~ 500	RC #2 EX5 #2
JS #1	Jump to start-point	RC #2 EX6 #2	
OTHERS	WN #1	Acquire warning status	RC #2 WN**,*,.....,** #2 ** : 00 ~ 11 00 : NONE 01 : HDD FULL 02 : HDD NEAR END 03 : NO SIGNAL 04 : COPY CHECK MEDIA/BACKUP CHECK MEDIA/ RESTORE CHECK MEDIA 05 : COPY SIZE ERROR/BACKUP SIZE ERROR/ RESTORE SIZE ERROR 06 : ARCHIVE FULL 07 : ARCHIVE NEAR END 08 : COPY OVERTAKE ERROR/BACKUP OVERTAKE ERROR 09 : COPY NEAR OVERTAKE/BACKUP NEAR OVERTAKE 10 : REC SYSTEM ERROR/COPY SYSTEM ERROR/ BACKUP SYSTEM ERROR/RESTORE SYSTEM ERROR/ SYSTEM ERROR 11 : COPY R/W ERROR/BACKUP R/W ERROR/ RESTORE R/W ERROR
	CA0 #1	Clearing warning	RC #2 EX #2
	VS? #1	Acquire information on status of video input (during recording)	RC #2 VS* #2 * : 0 ~ 1 0 : with Video Signal 1 : without Video Signal
	VN? #1	Acquire information on CH without video signal (during recording)	RC #2 VN*(1),(2),(3),(4),(5),(6),(7),(8),(9) #2 * : CH without Video Signal (maximum of 9CH)
	DC #1	Operation on DEVICE CHECK menu * : 0 ~ 1 0 : PWR-OFF 1 : CONFIG/INITIALIZE	RC #2 EX #2

Command codes (continued)

	Commands	Functions	Status, when normal execute
OTHERS	BT**[#1]	Boot-up delay setting ** : Second (00 ~ 99)	RC [#2] EX [#2]
	BT? [#1]	Acquire information on boot-up delay setting	RC [#2] BT** [#2] ** : Second (00 ~ 99)
	SS [#1] (MAIN DEVICE•HDD)	Acquire the current status	RC [#2] ST00 [#2] Power off RC [#2] ST01 [#2] during set up RC [#2] ST02 [#2] Power on/standby mode RC [#2] ST03 [#2] PB•Reverse speed search mode RC [#2] ST04 [#2] PB•Forward speed search mode RC [#2] ST05 [#2] PB•Playback mode RC [#2] ST06 [#2] PB•Pause mode RC [#2] ST09 [#2] RPB•Playback mode RC [#2] ST10 [#2] RPB•Pause mode RC [#2] ST11 [#2] REC•Recording mode RC [#2] ST12 [#2] REC•Pause mode RC [#2] ST13 [#2] A-REC (during standby)•Recording mode RC [#2] ST15 [#2] A-REC (during recording)•Recording mode RC [#2] ST17 [#2] Time date search RC [#2] ST19 [#2] Index search (FF) RC [#2] ST20 [#2] Index search (REW) RC [#2] ST21 [#2] Skip search (FF) RC [#2] ST22 [#2] Skip search (REW) RC [#2] ST25 [#2] Character search (FF) RC [#2] ST26 [#2] Character search (REW) RC [#2] ST27 [#2] Alarm list search RC [#2] ST29 [#2] Timer REC RC [#2] ST30 [#2] Reserve of Timer REC RC [#2] ST31 [#2] Timer reserve error RC [#2] ST33 [#2] Clearing device RC [#2] ST36 [#2] Restoring RC [#2] ST47 [#2] PRE-ALARM Recording•Standby mode
SS1? [#1] (ARCHIVE DEVICE)	Acquire the current status	RC [#2] SS1,00 [#2] Power off RC [#2] SS1,01 [#2] during set up RC [#2] SS1,02 [#2] Power on/standby mode RC [#2] SS1,03 [#2] PB•Reverse speed search mode (RDD only) RC [#2] SS1,04 [#2] PB•Forward speed search mode (RDD only) RC [#2] SS1,05 [#2] PB•Playback mode RC [#2] SS1,06 [#2] PB•Pause mode RC [#2] SS1,09 [#2] RPB•Playback mode RC [#2] SS1,10 [#2] RPB•Pause mode RC [#2] SS1,17 [#2] Time date search RC [#2] SS1,19 [#2] Index search (FF) RC [#2] SS1,20 [#2] Index search (REW) RC [#2] SS1,21 [#2] Skip search (FF) (RDD only) RC [#2] SS1,22 [#2] Skip search (REW) (RDD only) RC [#2] SS1,25 [#2] Character search (FF) RC [#2] SS1,26 [#2] Character search (REW) RC [#2] SS1,27 [#2] Alarm list search RC [#2] SS1,29 [#2] Timer REC RC [#2] SS1,30 [#2] Reserve of Timer REC RC [#2] SS1,31 [#2] Timer reserve error RC [#2] SS1,33 [#2] Initializing device RC [#2] SS1,34 [#2] Archiving RC [#2] SS1,36 [#2] Restoring RC [#2] SS1,46 [#2] Rewinding (DDS only)	

	Commands	Functions	Status, when normal execute
OTHERS	SS2? [#1] (Copy device)	Acquire the current status	RC [#2] SS2,00 [#2] Power off RC [#2] SS2,01 [#2] during set up RC [#2] SS2,02 [#2] Power on/standby mode RC [#2] SS2,03 [#2] PB•Reverse speed search mode (RDD only) RC [#2] SS2,04 [#2] PB•Forward speed search mode (RDD only) RC [#2] SS2,05 [#2] PB•Playback mode RC [#2] SS2,06 [#2] PB•Pause mode RC [#2] SS2,09 [#2] RPB•Playback mode RC [#2] SS2,10 [#2] RPB•Pause mode RC [#2] SS2,17 [#2] Time date search RC [#2] SS2,19 [#2] Index search (FF) RC [#2] SS2,20 [#2] Index search (REW) RC [#2] SS2,21 [#2] Skip search (FF) (RDD only) RC [#2] SS2,22 [#2] Skip search (REW) (RDD only) RC [#2] SS2,25 [#2] Character search (FF) RC [#2] SS2,26 [#2] Character search (REW) RC [#2] SS2,27 [#2] Alarm search RC [#2] SS2,29 [#2] Timer REC RC [#2] SS2,30 [#2] Reserve of Timer REC RC [#2] SS2,31 [#2] Timer reserve error RC [#2] SS2,33 [#2] Initializing media of device RC [#2] SS2,34 [#2] copying RC [#2] SS2,36 [#2] Restoring RC [#2] SS2,46 [#2] Rewinding (DDS only)

Table of Error Code

Error code	Meaning of error
ER00 [#2]	No power supply
ER01 [#2]	–
ER02 [#2]	–
ER03 [#2]	–
ER04 [#2]	–
ER05 [#2]	Malfunction occurred
ER06 [#2]	Present time or Timer program has not been set
ER07 [#2]	Alarm recording underway
ER08 [#2]	Unfeasible (NAK)
ER09 [#2]	–
ER10 [#2]	Incorrect command
ER11 [#2]	Incorrect parameter
ER12 [#2]	Overflow on receiver
ER13 [#2]	Data was not received
ER14 [#2]	–
ER15 [#2]	Data clearing underway (Command not accepted)
ER16 [#2]	PASSWORD ERROR
ER17 [#2]	PASSWORD LOCK is set

Table of Status Code

Status code	Meaning of status
CE** [#2]	given when error occurred during copy/restore ** : Error code (02 ~ 04) 02 : Copy/restore media error 03 : Copy/archive/restore R/W error 04 : Copy/restore size error
DC* [#2]	given when DEVICE CHECK menu appears * : 0 ~ 2 0 : Select PWR-OFF, CONFIG 1 : Select PWR-OFF, INITIALIZE 2 : Only PWR-OFF

■ Character Search

Characters can be added to both visuals and audio using a PC when the unit is connected to a PC via the RS-232C interface. These characters will appear on screen during playback. (There is also the possibility that the characters will not be displayed.) In addition, searches of images incorporating these characters, a process called Character Search, can also be performed. Searches are carried out by designating the characters associated with a particular image.

Character Search (continued)

• Character Search commands

- Character Search commands

Commands	Functions	Status,when normal execute
CR0 [#1]	Do not display characters on-screen (Playback only)	RC [#2] EX [#2]
CR1 [#1]	Display characters on-screen (Playback only)	RC [#2] EX [#2]
CR? [#1]	Acquire information on character display settings	RC [#2] CR* [#2] (* : 0-1) 0 : OFF 1 : ON
CM? [#1]	Acquire information on recalled display settings (Playback only)	RC [#2] CM***,Text data [#2] *** : Character count (01-48) (Text data up to 48 characters)
CC [#1]	Clear character display	RC [#2] EX [#2]
CW***, Text data (Up to 48 characters) [#1]	Create sets of written characters *** ⁽¹⁾ : Character count (01-48)	RC [#2] EX [#2]
CM [#1]	Record character sets	RC [#2] EX [#2]
LF***, Text data (Up to 48 characters) [#1]	Forward character search (During stop, pause, playback) *** : Character count (01-48)	RC [#2] EX4 [#2] (Reply at the completion of search)
LR***, Text data (Up to 48 characters) [#1]	Reverse character search (During stop, pause, playback) *** : Character count (01-48)	RC [#2] EX4 [#2] (Reply at the completion of search)

• Characters can be used

Alphabet	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
ASCII code	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Character	#1	%	()	-	.	/	:	<	>																
ASCII code	32	37	40	41	45	46	47	58	60	62																
Number	0	1	2	3	4	5	6	7	8	9																
ASCII code	48	49	50	51	52	53	54	55	56	57																

• Sample operation

#1: a space

1) Record characters "ABCDEF" and images simultaneously. (On the RS-232C settings screen, set CR/CR•LF to "CR".)
The following are the two steps required for recording characters:

- ① Set the character (or characters string) to be recorded;
- ② Record the selected character(s).

By using the CM command, characters which have been set once can be recorded any number of times. To record a different character set, use the CW command.

Command from personal computer	Replied status code from unit to a personal computer	Meaning
CW06,ABCDEF [CR]		Sending a command for setting "ABCDEF" .
	RC [CR] EX [CR]	The unit received a command and executed.
CM [CR]		Sending a command to record set characters (it is able to execute while recording).
	RC [CR] EX [CR]	The unit executed a command.

[CR] means a carriage return code (0DH).

- Set the CH. TITLE setting to "NONE" to display characters during segmented display mode.




2) Search for the scene associated with the recorded character set "ABCDEF". (On the RS-232C settings screen, set CR/CR•LF to "CR".)

Command from personal computer	Replied status code from unit to a personal computer	Meaning
CR1 [CR]		Display characters on-screen (Playback only).
	RC [CR] EX [CR]	The unit received a command and executed.
LF06,ABCDEF [CR]		Sending a command for serching "ABCDEF" by character search in a direction of the time being.
	RC [CR] EX4 [CR]	The unit received a command and executed.

[CR] means a carriage return code (0DH).

- Character searches can only be performed during stop, pause, and playback modes.
- The unit will fast forward or rewind until it finds the character string, then shift into still frame mode.
- If the unit does not find the character string, it will stop automatically.
- When there are multiple instances of the same character string, repeat character search if the retrieved image is not the desired image.
- Character searches may be time-consuming as the process involves searching through all the data.
- Forward searching is the only option available when using a DDS device for playback.

Recording time table

-  Audio recording possible. (12.8kHz sampling)
-  Audio recording possible, but with diminished quality. (8kHz sampling)
-  Audio recording not possible.

■ Audio recording time table

Approximate recording time (if recording is made internal 30 GB HDD)

◆ Without Audio recording

Field/sec. REC P.GRADE	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F	NUMBER OF RECORDING FIELD
SUPERIOR	6h	12h	19h	25h	38h	57h	76h	101h	158h	317h	634h	1268h	570,000
HIGH	9h	18h	27h	36h	55h	82h	110h	147h	229h	459h	919h	1839h	827,000
STANDARD	13h	27h	40h	54h	81h	122h	163h	218h	340h	681h	1363h	2727h	1,227,000
BASIC	18h	36h	54h	72h	108h	162h	216h	289h	451h	903h	1807h	3615h	1,627,000
LOW	24h	48h	73h	97h	146h	219h	293h	390h	610h	1221h	2442h	4884h	2,197,000

◆ Audio recording

Field/sec. REC P.GRADE	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F	NUMBER OF RECORDING FIELD
SUPERIOR	5h	10h	15h	20h	30h	45h	60h	81h	126h	253h	507h	1014h	456,000
HIGH	6h50min	13h	20h	27h	41h	62h	83h	111h	174h	348h	697h	1395h	627,000
STANDARD	10h	20h	31h	41h	62h	94h	125h	167h	261h	523h	1046h	2093h	941,000
BASIC	13h	27h	41h	55h	83h	125h	167h	223h	348h	697h	1395h	2790h	1,255,000
LOW	18h	37h	56h	74h	112h	168h	224h	299h	467h	935h	1871h	3742h	1,684,000

This recording time table lists recording times for when the capacity of the built-in HDD is 30.0 GB. Please note that alterations to the built-in HDD may contribute to slightly longer recording times than those listed on this recording time table.

■ Pre-alarm recording time table

◆ Without Audio recording, recording duration is set to “LONG”.

Field/sec. REC P.GRADE	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	3.2s	6.4s	10s	12s	19s	28s	38s	58s	1min20s	2min40s	5min20s	10min40s
HIGH	4.6s	9.3s	13s	18s	27s	41s	55s	1min32s	1min56s	3min52s	7min44s	15min28s
STANDARD	6.9s	13s	20s	27s	41s	1min1s	1min22s	2min10s	2min52s	5min44s	11min28s	22min56s
BASIC	9.1s	18s	27s	36s	54s	1min22s	1min49s	2min51s	3min48s	7min36s	15min12s	30min24s
LOW	12s	24s	36s	49s	1min13s	1min50s	2min27s	3min35s	5min8s	10min	20min	41min

◆ Without Audio recording, recording duration is set to “MIDDLE”.

Field/sec. REC P.GRADE	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	1.6s	3.2s	4.8s	6.4s	9.6s	14s	19s	25s	40s	1min20s	2min40s	5min20s
HIGH	2.3s	4.6s	7.0s	9.3s	13s	20s	27s	37s	58s	1min56s	3min52s	7min44s
STANDARD	3.4s	6.9s	10s	13s	20s	30s	41s	55s	1min26s	2min52s	5min44s	11min
BASIC	4.6s	9.1s	13s	18s	27s	41s	54s	1min12s	1min54s	3min48s	7min36s	15min
LOW	6.2s	12s	18s	24s	36s	55s	1min13s	1min38s	2min34s	5min8s	10min	20min

Recording time table (continued)



Audio recording possible. (12.8kHz sampling)



Audio recording possible, but with diminished quality. (8kHz sampling)



Audio recording not possible.

Without Audio recording, recording duration is set to "SHORT".

REC P.GRADE \ Field/sec.	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	0.8s	1.6s	2.4s	3.2s	4.8s	7.2s	9.6s	12s	20s	40s	1min20s	2min40s
HIGH	1.2s	2.3s	3.5s	4.6s	7.0s	10s	13s	18s	29s	58s	1min56s	3min52s
STANDARD	1.7s	3.4s	5.2s	6.9s	10s	15s	20s	27s	43s	1min26s	2min52s	5min44s
BASIC	2.3s	4.6s	6.8s	9.1s	13s	20s	27s	36s	57s	1min54s	3min48s	7min36s
LOW	3.1s	6.2s	9.2s	12s	18s	27s	36s	49s	1min17s	2min34s	5min8s	10min

Audio recording, recording duration is set to "LONG".

REC P.GRADE \ Field/sec.	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	2.6s	5.1s	7.7s	10s	15s	23s	30s	40s	1min4s	2min8s	4min16s	8min32s
HIGH	3.5s	7.0s	11s	14s	21s	31s	42s	56s	1min28s	2min56s	5min52s	11min
STANDARD	5.3s	11s	16s	21s	31s	47s	1min3s	1min24s	2min12s	4min24s	8min48s	17min
BASIC	7.0s	14s	21s	28s	42s	1min3s	1min24s	1min52s	2min56s	5min52s	11min	23min
LOW	9.4s	19s	28s	37s	56s	1min24s	1min53s	2min31s	3min56s	7min52s	15min	31min

Audio recording, recording duration is set to "MIDDLE".

REC P.GRADE \ Field/sec.	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	1.3s	2.6s	3.8s	5.1s	7.7s	11s	15s	20s	32s	1min4s	2min8s	4min16s
HIGH	1.8s	3.5s	5.3s	7.1s	11s	15s	21s	28s	44s	1min28s	2min56s	5min52s
STANDARD	2.6s	5.3s	7.9s	11s	15s	23s	31s	42s	1min6s	2min12s	4min24s	8min48s
BASIC	3.5s	7.0s	11s	14s	21s	31s	42s	56s	1min28s	2min56s	5min52s	11min
LOW	4.7s	9.4s	14s	18s	28s	42s	56s	1min15s	1min58s	3min56s	7min52s	15min

Audio recording, recording duration is set to "SHORT".

REC P.GRADE \ Field/sec.	25F	12.5F	8.33F	6.25F	4.17F	2.78F	2.08F	1.56F	1F	0.5F	0.25F	0.13F
SUPERIOR	0.6s	1.3s	1.9s	2.6s	3.8s	5.8s	7.7s	10s	16s	32s	1min4s	2min8s
HIGH	0.9s	1.8s	2.6s	3.5s	5.3s	7.9s	10s	14s	22s	44s	1min28s	2min56s
STANDARD	1.3s	2.6s	4.0s	5.3s	7.9s	11s	15s	21s	33s	1min6s	2min12s	4min24s
BASIC	1.8s	3.5s	5.3s	7.0s	10s	15s	21s	28s	44s	1min28s	2min56s	5min52s
LOW	2.4s	4.7s	7.1s	9.4s	14s	21s	28s	37s	59s	1min58s	3min56s	7min52s

Troubleshooting

If problems with the unit persist even after you've followed the suggestions below, please disconnect the power cord and contact the retailer from whom you purchased the unit.

	Description of problem	Please consult the following	Page
INSTALLATION	The unit will not turn on.	Is the power cord properly plugged in? Is the LOCK indicator light on? Is the TIMER REC indicator light on?	- 6,7,56 6
	Power is on, but the unit will not operate.	Is the LOCK indicator light on? Is the POWER button blinking? (The unit cannot be operated when the POWER button is blinking and it's the same when the other buttons and indicator are blinking.) It is possible that the safety features are in operation. Restart the unit by pressing the RESET button located at the back of the unit using a ballpoint pen or similar object.	6,7,56 6 8,9 ,56
	Images are not appearing on the monitor.	Are the monitor and camera(s) connected correctly? Is the unit receiving an input signal from the selected camera? Check this by setting the unit to SPLIT 9.	17 37
	The quality of the monitor picture is poor.	Is the connecting cord connected correctly? Is the camera's focus adjusted correctly?	- -
RECORDING	The unit will not start recording.	Is there any recording space left on the disk? The unit begins recording only after the specified recording time. Was the unit stopped during the specified recording time? Is the PRE ALARM REC indicator light on?	- 13 6
	The unit will not stop recording.	Is the LOCK indicator light on? Is the unit running in Timer Recording mode? If so, cancel the Timer Recording and press the TIMER REC button once again.	6,7,56 43-45
	The unit will not perform Repeat Recording.	Is the unit running in Repeat Recording mode?	46
	The unit will not perform Timer Recording.	Are the date and current time set accurately? Are the Recording Start-/End-times and the recording interval set correctly? If the recording interval has been set correctly, then has the recording medium been placed in the unit? Has the recording medium's write-protect been removed? Is the HDD Repeat Recording setting set on REC•STANDBY?	11 12,43 43 47
	The unit will not perform Alarm Recording.	Is the unit in stand-by mode? Are the peripheral switches, etc., connected correctly?	6 17,18
PLAYBACK	The unit will not perform playback.	Is the LOCK indicator light on? Has the image data been erased? Has the playback device been selected correctly? Is the PRE ALARM REC indicator light on?	6,7,56 26 51 6
PERIPHERAL RECORDING DEVICE	The copying device/archive device does not respond.	Has the recording medium been inserted correctly into the unit? Is the unit currently in the middle of loading the recording medium? Has the playback device been selected correctly?	- - 51
	Power is on, but I cannot get past the "NOW SET UP ..." display.	Has the peripheral recording device been selected correctly? Is the peripheral recording device's SCSI ID number set correctly? Is the SCSI terminator switch off?	18 18,51 8
	The unit will not backup all of the data on the hard disk.	Have limits been placed on the hard disk's storage capacity? Inspect the recording medium. Check the amount of available recording space.	19 19 19

	Description of problem	Please consult the following	Page
OTHERS	The unit will not respond to PC control.	Is the RS-232C setting set correctly? Are the unit and computer connected correctly? Is there a defect in the connecting cable? Is the proper connecting cable being used?	8,57 57 57 57
	The DEVICE CHECK menu does appear when power is turned on.	Is peripheral device's SCSI ID setting set correctly? Inspect the connecting cable.	20,51 -
	The unit is not detecting its peripheral recording device(s).	Is the SCSI terminator switch on? Have the peripheral devices been disconnected? Are the recommended peripheral devices being used?	8 - -
	Black screens are being displayed during multi-screen display.	Operations settings have not been made, in the Camera Operation Setting parameter of the MPX FUNCTIONS screen. Input from cameras not displaying the "•" symbol will appear black on the monitor.	37
	Button operation is not working.	Is the playback device indicator light blinking? Wait until the light stays on, then start operation once more. If the light does not stop blinking for a long period, use the RESET button located at the back of the unit. Is the LOCK function or the PASSWORD LOCK function in effect? If so, please cancel the function(s).	6,7,8 56
	Button operation of camera numbers is not working.	Is the Menu screen being displayed? (Camera number buttons cannot be used when the Menu screen is displayed.) Is the unit currently accessing a peripheral recording device? Check the ACCESS indicator.	10 6,7

■ Glossary

Simultaneous Backup (Copying) method

In Simultaneous Backup (Copying), images input from the cameras are recorded once on the unit's hard disk and simultaneously copied from the hard disk onto a removable archive/copying medium. Because images are first recorded onto the hard disk, the unit performs well for Alarm Recording and high-quality images needs, and can use "blank time" to backup/copy onto the separate medium. In addition, the unit marks the end of backup recording time through the use of the Archive Pointer.

Archive Pointer

The Archive Pointer is used to mark, on the archive medium, the completion of a backup process. For example, 100 hours of data recorded on the unit's hard disk is to be transferred to a medium with only 80 hours of available recording space. When the backup process is completed, the Archive Pointer will memorize the hard disk's 80-hour mark. When the next backup process is initiated, backup will begin at this point.

Copying Device

The copying device is the peripheral device assigned to SCSI ID5. By using the unit's COPY button, this device can be made to copy (restore) image data recorded over a designated time frame.

Archive Device

The archive device is the peripheral device assigned to SCSI ID4, and performs the following: backup specification using the ARCHIVE button or Timer Program, and backing up of image data using the Restore function in the Copy settings.

Restore

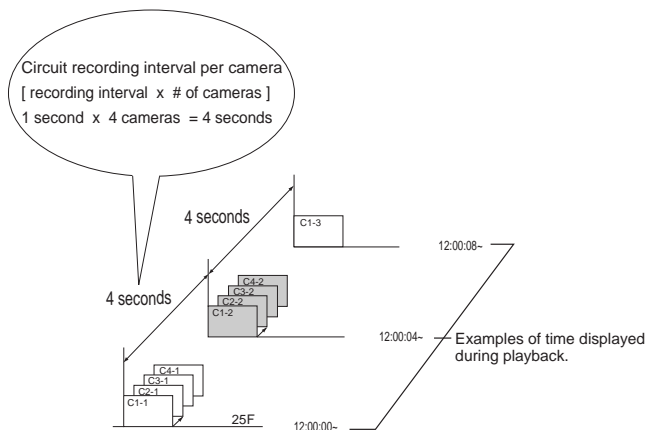
Restore is the process in which image data transferred to the peripheral recording device is restored on the unit's hard disk. During the Restore process, image data currently stored on the unit's hard disk is completely over-written.

SCSI Interface

The SCSI interface is the connection used expressly for transferring image data between the unit and its peripheral devices. Each peripheral is connected to the unit in a daisy-chain configuration, and is given a unique ID number for detection/identification by the unit.

Relation of recording operation to the number of cameras and recording interval settings

The recording pattern of this unit is as illustrated in the diagram below. Image data input from all the connected cameras is recorded sequentially at a rate of [number of cameras x recording interval]. (Recording interval for each camera is 25F.)
For example, when four cameras are recording at intervals of 1 second, the unit takes four seconds to receive one cycle of image data from the cameras. When this data is played back on a single-screen, the display is refreshed once every four seconds.



Warnings and CALL OUT output

■ Warnings and their appropriate countermeasures

Options in the CALL OUT options column:

- Selectable: CALL OUT output can be selected/de-selected on the menu.
- Yes: a CALL OUT signal is emitted without prior selection of this function using the menu.
- None: no CALL OUT signal is emitted, but a warning indicator will appear on screen.

Warning	Status	Countermeasure	Canceling the warning	CALL OUT output	Reference
HDD FULL	The internal hard disk drive is full when either "STOP" or "REC•STANDBY" has been selected in "HDD REPEAT".	<ul style="list-style-type: none"> • When the warning is canceled, the unit will start over-writing the oldest data remaining in the hard disk drive. • Archive or copy data as necessary. 	Press the WARNING RESET button.	Selectable	46 26,27,30 51-55
HDD NEAR END	The storage capacity of the hard disk drive is approaching the value entered into the HDD capacity setting.	<ul style="list-style-type: none"> • Archive or copy data as necessary. 	Press the WARNING RESET button.	Selectable	26
ARCHIVE FULL	The storage medium in the backup recording device is full.	<ul style="list-style-type: none"> • Replace the medium in the backup recording device. 	Press the WARNING RESET button.	Selectable	26,27
ARCHIVE NEAR END	The limit of the archive medium's storage capacity is being reached.	<ul style="list-style-type: none"> • Replace the medium in the backup recording device. 	Press the WARNING RESET button.	Selectable	26,27
COPY OVERTAKE ERROR ARCHIVE OVERTAKE ERROR	Non-backed up data was over-written while the HDD was in Repeat mode.	<ul style="list-style-type: none"> • If you do not wish to have the data over-written, stop recording. • Change the settings for recording interval and image quality. (More specifically, lengthen intervals and lowre image quality.) 	Press the WARNING RESET button.	Yes	51-55
COPY NEAR OVERTAKE ARCHIVE NEAR OVERTAKE	The HDD is in Repeat mode, and data which has not been backed up will be over-written. (The amount of time remaining before the unit begins over-writing is approx. 5% of the time indicated as the possible recording duration.)	<ul style="list-style-type: none"> • If you do not wish to have the data over-written, stop recording. • Change the settings for recording interval and image quality. (More specifically, lengthen intervals and lowre image quality.) 	Press the WARNING RESET button.	Yes	51-55
COPY SIZE ERROR ARCHIVE SIZE ERROR RESTORE SIZE ERROR	When using the copy or restore functions, either the amount of data to be transferred exceeds the limits of the storage medium, or there is no data to be copied.	<ul style="list-style-type: none"> • Reset the range of backup or copying. • Replace the archive/copy medium. 	Press the WARNING RESET button.	Yes	51-55
COPY CHECK MEDIA ARCHIVE CHECK MEDIA RESTORE CHECK MEDIA	An error has occurred in either the RDD device or the DDS device.	<ul style="list-style-type: none"> • Check the storage medium in the RDD or DDS device. (Insert medium if there is none. If medium is present and you wish to use it, undo the write-protection. If medium is present and you do not wish to use it, replace the medium.) 	Press the WARNING RESET button.	Yes	51-55
NO SIGNAL (1 2 3 4 5 6 7 8 9) [The warning will indicate the number of the non-functioning camera.]	Visual signal was absent for over 5 seconds during recording.	<ul style="list-style-type: none"> • Check whether the unit and camera are properly connected, and that electricity is on. • Check whether the visual signal is being properly outputted. • Check whether the unit's camera setting is set to an empty channel. 	<ul style="list-style-type: none"> • Either turn off recording or, if the visual signal has been restored, cancel the warning • Press the WARNING RESET button. 	Yes	17,38
SYSTEM ERROR REC SYSTEM ERROR COPY SYSTEM ERROR ARCHIVE SYSTEM ERROR RESTORE SYSTEM ERROR	SCSI connection error or system malfunction.	<ul style="list-style-type: none"> • Confirm that the SCSI cable is properly connected. • Restart operation. • Inspect the HDD/archive/copy device. 	Press the WARNING RESET button.	Yes	17
COPY R/W ERROR ARCHIVE R/W ERROR RESTORE R/W ERROR	A data-writing error occurred during backup or copying.	<ul style="list-style-type: none"> • Inspect the archive/copy device. 	Press the WARNING RESET button.	None	18

Specifications

Rated Power Supply:	AC 100-240V 50/60Hz
Rated Input:	1.00-0.50A (100-240V)
Color System:	PAL-type color system.
Operating Temperature:	41°F-104°F (5°C to 40°C).
Relative Humidity:	Max.80(%)
Altitude:	Max.3000(m)
Dimensions:	425(Width) x 380(Depth) x 113(Height)(mm).
Weight:	7.1kg
Recording System	Digital recording system with JPEG compression method.
Sampling	13.5MHz
Data Compression	JPEG
Compression Unit	Field
Audio Recording System	PCM
Resolution	684 x 288
Recording Device	30GB HDD
Video Input:	9 Input BNC-Connector: 1.0 V(p-p), 75 ohms.
Monitor Output:	S-Connector: Y-Signal: 1.0 V(p-p), 75 ohms. C-Signal: 0.286 V(p-p), 75 ohms.
BNC-Connector:	1.0 V(p-p), 75 ohms.
Throughout Output:	9 Output BNC-Connector: 1.0 V(p-p), 75 ohms.
Audio Input:	-8 dBs, 50 kohms.
Audio Output:	-8 dBs, 1 kohms.
Microphone Input:	-67 dBs, 600 ohms.
Timer Program:	8programs-Daily start and stop time for one week x3set.
Memory Backup:	Lasts for more than 1 month.

CONNECTORS

POWER ON Input:	Terminal for power ON. LOW: POWER OFF / HIGH: POWER ON
POWER OFF Input:	Terminal for power OFF. LOW: POWER OFF
ALARM IN(1-9) Input:	Terminal for starting alarm recording.
CLOCK ADJ Input:	Terminal for adjusting clock.
REC Input:	Terminal for starting.
GND:	Terminal for ground.
ALARM OUT Output:	Terminal for output while alarm recording is under way.
MODE OUT Output:	Terminal for indication of recording selected mode.
DC 5V OUT Output:	Terminal for DC 5V OUT.
CALL OUT/CALL OUT GND:	Terminal for external warning device.

Rating:

ALARM OUT /	Active: "Low" Level.	Max. Drive current 7mA DC.
MODE OUT	Non active: Open.	Max. Voltage +24V DC.
ALARM IN / CLOCK ADJ /	Active: When terminals are short-circuited or "Low" Level voltage is applied.	
REC	Non active: Open.	
CALL OUT /	Active: ON.	Max. Drive current 7mA DC.
CALL OUT GND	Non active: Open.	Max. Voltage +24V DC.

RS-232C	RS-232C (D-SUB 9pin) terminal for connection with personal computer.
SCSI	SCSI2 (Half pitch 50pin) terminal.

Accessories

AC power cord (for U.K / for the Continent)	2
Ferrite core	2
Cable tie	2
Accessory software	1
Cable (for the extra install hard disk drive)	2
Screw (for the extra install hard disk drive)	18
Stopper (for the extra install hard disk drive)	1

Weight and dimensions shown are approximate.
Design and specifications are subject to change without notice.

